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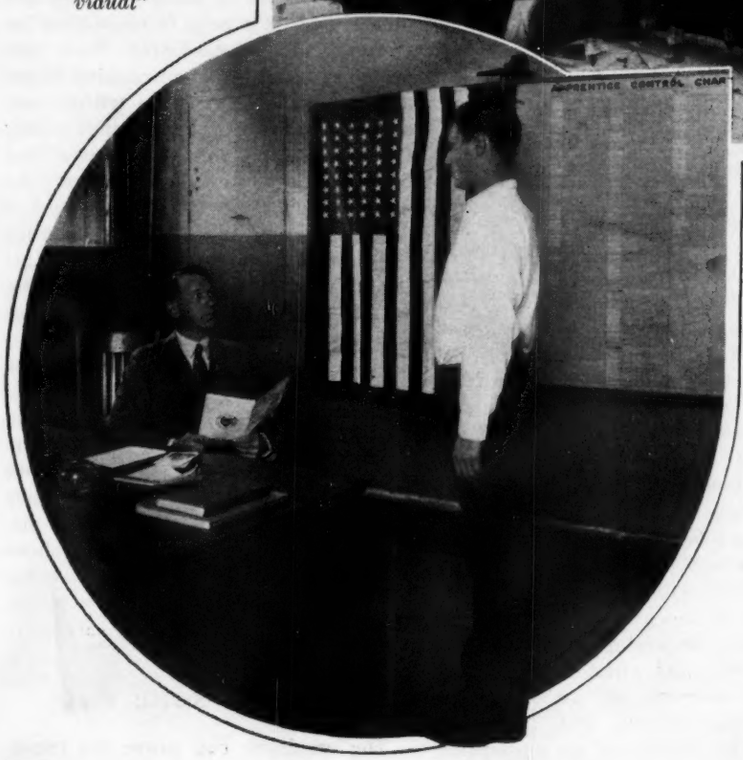
Work To Hold Your Apprentices

"Apprentice morale depends in the first place upon full recognition of the apprentice as an individual"



Bring the organization together. "An annual banquet can be made a splendid success"

Lose Interest in Them, They'll Quit the Job

By C. J. Freund

Apprentice Supervisor, Falk Corp., Milwaukee

FAILURES of apprentice training programs are not unusual. The greater number probably occur as a result of insufficient preparation within a few months after the installation of the plan. Frequently, however, apprentice training fails after an entire year, or even after two or three years.

In such cases the work may have been carefully prepared and may have been given the proper amount of thought and time, so that considerable enthusiasm developed and good progress was made in the beginning. As time passes, interest gradually tapers off, no new apprentices are hired to replace those who leave, less attention is paid to them and their work. Officials are convinced the system will not work out and give it up. Failures of this kind after a good start result when employers assume an apprentice training program will be successful of its own momentum, if a careful preparation is made.

"It is a good plan to have all apprentices in a department work as nearly together as they can without disturbing each other"

Employers who have been successful in training apprentices over a period of years usually believe that the maintenance of the morale of apprentices is as important, if not more so, than the careful preparation of the program. Their experience has shown that despite the need for establishing a department, laying out proper schedules for work and pay for apprentices, convincing all members of the organization of the necessity and feasibility of apprentice training, the real work does not begin until the first apprentices have begun to work themselves into the organization, and until works manager, superintendents, foremen and other officials give their best time and thoughts to other things. Many apprentice training programs have failed because employers have not gone to work on apprenticeship "in dead earnest" at this crucial point.

Two Considerations to Heed

The employer who wishes his apprentice training program to continue after the first enthusiasm has passed, who wishes to maintain the morale of his apprentices, will need to keep two considerations in mind. Apprentice morale depends first on full recognition of each apprentice as an individual, with his own peculiar character and tendencies; and second, on keeping alive a strong group consciousness or esprit de corps among the apprentices. Each apprentice needs to be shown, not once but constantly, that the officials know him and understand him, or at least attempt to understand him. The apprentices also must be made to understand that they are a group apart, that for them training is more important that production in theory, although learning to produce is an important part of training, and that more is expected of them in diligence and interest than of the regular employes.

Learn Apprentice's Name

Officials of the shop and of the apprentice department probably can demonstrate their recognition of each individual apprentice no better than by learning his name and always calling him by it. The apprentice in a large organization frequently feels lost after the excitement of getting used to the work has passed, and he frequently fears that he will be forgotten among the large number of his fellow workers. His misgivings are enhanced if he is addressed in the shop as "Jack" or "Buddy," or if the foreman calls him by "Hey, you, over there." Equally detrimental is the custom of time and cost clerks referring to an employe by his clock number, thinking they thereby demonstrate their superiority. Contrast this with the feeling of confidence and security which is bred in the apprentice who is invariably called by name.

Officials will increase their advantage if they will remember not only the name of the apprentice but other information concerning him. The apprentice who finds that his superiors know his interests and ambitions, remember the various little achievements of his career as an apprentice, and even as a school boy before he became an apprentice, and keep in mind the kind of work he likes best, will not only complete his apprentice course but will display an increasing interest in his work as time passes.

Prompt solution, or attempted solution, of the many problems and difficulties which the apprentice encounters will go a long way toward creating in him, or maintaining in him, the conviction that he is not being forgotten. The apprentice who feels that he is in the wrong trade and goes to the office of the apprentice department repeatedly requesting a change to a different line of work and finds his request constantly put off, or is given repeated indefinite promises which are never kept, cannot be expected to persevere. On the other hand, if a note is made that he wishes to be transferred from the drafting room to the machine shop, and the transfer is made within several weeks without his having to ask for it a second time, he knows that his personal interests will not be neglected.

Not all problems of the apprentice can be easily solved, but a sincere attempt to solve his problem will be as effective as an actual solution, at least in holding his interest and confidence. Most apprentice difficulties are comparatively simple matters to the supervisor and there can be no excuse for his failure to solve them quickly and completely. Controversies between apprentices and foremen, fights between boys, doubts and discouragements and school problems are merely items in the everyday routine of the apprentice department, however serious they may appear to the apprentice.

Should Plan Special Work

The employer can prove his recognition of the apprentice by planning special work for each one in keeping with his final purpose in learning the trade. Thus, the machinist apprentice who hopes to become a toolmaker some day can be given as many tool room assignments as possible. The draftsman who has visions of becoming an engineer can be provided with as many opportunities as possible to work under the supervision of engineers. Apprentices will lose con-

(*Concluded on Page* 391)

Modern Forge Shop Rises Out of Fire Ruins in Record Time

New Plant and Equipment Provide Facilities To Meet Demand for Forgings, Which Has Grown Steadily Since the War—Much Special Steel Is Used

By F. B. Pletcher

Associate Editor, Iron Trade Review

WHAT can be done in rehabilitating a plant that has suffered a disastrous fire in midwinter weather, without serious disruption of service to many of its customers, has been demonstrated by the Atlas Forgings Co. in the Chicago district.

The plant of the company, at 1443 South Fifty-fifth court, Cicero, Ill., was reduced virtually to charred and tangled ruins Nov. 6, 1926. A heavy snow then covered the debris and further damaged machinery and equipment, some of it being in condition that seemed suitable only for the scrap heap. Within 90 days full operations again were resumed, and recently the company embarked upon further expansion. Modern forge shop equipment in a fireproof plant has been installed. The company, having seized upon its misfortunes as an opportunity to go ahead, is prepared to handle even a broader production than before. The story of the birth of this plant from the ashes of the old typifies the spirit of industrial enterprise that surmounts the most discouraging obstacles, and is touched with the drama of a loyalty that rises above reverses. The smooth-running organization that remained undaunted in the teeth of what at first appeared to be a disaster, has helped the company not only to bridge the trials of re-establishing itself, but also in its constant endeavor to improve its product and build up profits.

AFTER the forge plant (shown above) was destroyed by fire, reconstruction began immediately. Lower right view shows the forging of a large shaft under 6000-pound hammer

A wind break of boards over two steam hammers after the fire kept production going in a wintry atmosphere while workmen were cleaning up the ruins and beginning reconstruction. Only scant portions of the walls and the boiler house were left standing.

The speedy recovery of full productive capacity was aided by the good fortune that the boiler house was left virtually intact, as it had jutted off the main plant. The fire occurred on a Saturday, and by early Sunday sufficient steam was available from the boilers which were undamaged, to heat the office, and the work of reconstruction then was started. Concerning the unusual co-operation of an organization in such an emergency, an official of the company states:

"We had a structural steel man and a general contractor on the ground while the ruins still were smoking. Our own men already had started to clean up the debris, but to add to our difficulties, a heavy snowfall came Monday, two days after the fire. The snow was nearly a foot deep on level ground, and cleaning up was greatly hampered. However, with steam hose we melted the snow so we could see what we were doing. By the time a settlement was made by the insurance adjusters, we had all the ruins out of the way, and then we went ahead and rigged up a temporary steam line to two hammers nearest to our boilers, and started to make forgings in the open air. Boards were put up for a wind break, as workmen already were starting reconstruction overhead, and we could not build even a temporary roof over these hammers.

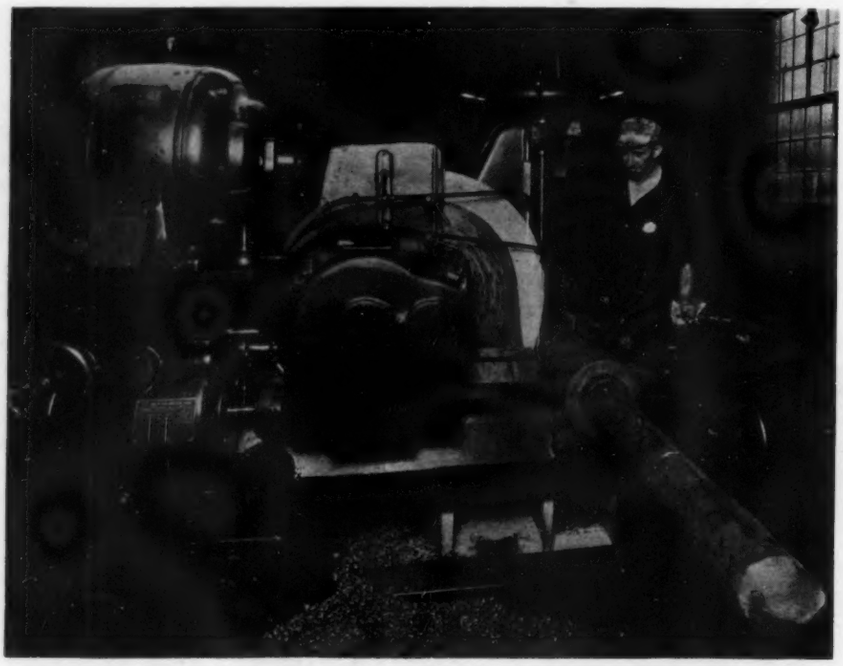
"Our competitors were kind, and offered to do some of our work, so we gladly took advantage of such considerate offers. Thus we maintained in a fair way our service to those customers who kept sending in their orders, although immediate notices had been sent out concerning our loss. We felt that our customers thus had demonstrated remarkable confidence in us, and the attitude of our competitors was most heartening.

"The all-important thing was to get the structural steel in place, for then we could go ahead with our overhead cranes, jib cranes and trolley system. By Jan. 1, the structural steel work was near completion, and soon we had the permanent steam line to another hammer. In this way we proceeded, sometimes through sub-zero weather, until in a short time all the steam hammers were connected, long before the walls were up and the roof on.

"Every step was carefully thought out by all the members of our firm, employes as well as officials staying close to the job, by night and by day. There was no such thing in our office as lunch time, or a time to start in the morning or to quit at night. Thus by exceedingly close application, nothing in our program went amiss. The dovetailing of our predetermined plans was necessary in our speedy rehabilitation.

"We seized upon the opportunity of disaster to improve upon the arrangement of our plant, equipment and methods. Particularly, we improved our handling facilities, and so were able to bring up our plant to the minute in modernity. The fact that the original plant was built in 1919, and still had been modern in design and arrangement of equipment, made the task much easier. We also provided a large factor of safety in our superstructure, the trusses and columns now being capable of carrying any weight we could ever need to handle.

"We now have a plant that cannot burn, for there is no inflammable material used in the construction. There is nothing in it in the way of equipment or accessories that could become ignited or cause fire damage except the oil in our quenching tank, and this is protected by chemical apparatus, which could be used in spraying on the surface of the oil tank contents in an emergency."



Rough ends of forgings are removed by saw in machine shop

Make Wider Range of Products

The company is extending the diversity of its forging products, recognizing the broader and more exacting demands being made from the modern purchaser and user of these products. The range of the company's forging products now embraces virtually everything that can be formed between anvil and hammer. Open-hammer forging by no means is losing ground, is the opinion of officials of the company, who report a steadily growing demand for alloy and special steel heat treated forgings, particularly for such products as axles, crank shafts, gears, tools, connecting rods, and other equipment that constitute vital parts of machinery building. The airplane industry, it is stated, will continue to open avenues for the outlet of forged products. The company points out that now about 60 per cent of its products are forgings made from alloy and special steel billets and bar stock.

The extent to which the forging industry has established itself in the Chicago district is illustrative of the trend in demand, it is stated. "Products made in this district require forgings of the best grade," stated a member of the Atlas company. "There are now eight of what might be called the larger forgings producers in the Chicago area, a number of which started in an extremely small way. Our own company was organized in 1914. It occupied two smaller plants before our present location was established in 1919.

"Forgings are being selected in metalworking and assembly lines to a

much greater degree since the war. When the problem and cost of machining is not too much involved, forgings are steadily finding their place. As an illustration of the type of demand in the Chicago district, the orders for forged gears have grown to tremendous volume, and the forging of gear blanks alone occupies important productive activity in most of the forging plants of this territory. While the war gave added impetus to the forging industry, the years since have seen most forging plants steadily growing in production."

Present equipment of the plant includes seven steam hammers, ranging from 6000 pounds capacity down to 600 pounds, the larger ones being comparatively new. A 6000-pound double-frame Massillon-type hammer was furnished by the Industrial Brownhoist Corp., Cleveland; and a 3500-pound double-frame and 1500-pound single-frame hammers were furnished by the Buffalo Foundry & Machine Co., Buffalo. Niles-Bement-Pond Co. supplied a 3200-pound and a 600-pound hammer. Monighan Mfg. Corp., Chicago, supplied 1500 and 1100-pound hammers. Two boilers furnish steam to the forging hammers. They are 150 and 250 pounds pressure.

Preheating Furnaces Burn Oil

The seven preheating furnaces were designed and built by the Atlas company, and are of the oil-burning type, all being provided with pyrometers and automatic control. They are arranged in comfortable working relation to the hammers. The burners and oil feeding equipment were furnished by the North American Mfg. Co., Cleveland, and the Mahr Mfg. Co., Minneapolis. Oil tanks are outside the building, whence the oil is tapped and charged into the burners by the blower method through 2½ to 3-inch pipes.

The company has built up a modern department for machining. This department includes three heavy-duty lathes, the largest with a capacity to swing 40 inches over the ways, and 22 feet 7 inches between centers. Heavy-duty drills with capacity for deep drilling also are included. A Heller-type rapid-cut cold saw, an unusual feature for a forging unit of this size, was furnished by the Steinle Turret Machinery Co., Madison, Wis. It has capacity for sawing a 14-inch section through, and a cutting speed rate of 2½ minutes through a 6 x 6-inch billet or bar. A number of other saws of the crosscut and band type are included. There is also burning and welding equipment.

Equipment of the shipping department comprises the most modern facilities for handling. Here is a dial-type scale, furnished by Fairbanks, Morse & Co., Chicago, with a capacity up to 10,000 pounds. Overhead cranes and trolley system equipped with electric hoists attend all machines and furnaces.

The monitor roof of the main forging plant building has a number of openings through which the gases and steam from the furnaces and operations are expelled by electrically-driven blowers. These were furnished by the Ilg Electric Ventilating Co., Chicago, and H. H. Robertson Co., Pittsburgh.

The company believes that the forging industry of the future will be required to furnish even larger forgings, and is equipping itself for such eventuality. At present, the company has capacity for turning out individual forgings up to more than four tons. Individual shafting work of chrome-nickel steel 28 to 33 feet long, with other dimensions of 11 x 12 inches, and even 2½ feet thick, have been produced. Considerable effort has been put forth in training the operating personnel. Sometimes relatively large crews are required for certain types of work being forged, but ordinarily hammer crews consist of three to five men.

Forgings are weighed on dial scale in shipping room

Class I railroads on July 15 had 211,165 surplus freight cars in good repair and immediately available for service, according to the American Railway association. This was an increase of 6857 cars compared with July 8, when there was a total of 204,308 cars.

Farm Machinery Exports Make Large Gains

Exports of agricultural implements and machinery from the United States, for the first six months of 1929 amounted to $72,068,581, an increase of $18,000,000 or 33 per cent over the amount for the corresponding period of 1928, when shipments reached the large total of $53,991,504, states the agricultural implements division, department of commerce.

This increase is entirely satisfactory when compared with that of the first half of 1928 as against the same period of 1927, the increase amounting to $11,742,611. Such a gain for the first six months of any year has never previously been recorded.

The most noteworthy increase occurred in shipments of wheel tractors which showed a net gain in all types and sizes of $6,164,709. Shipments of tractors of 15 horsepower and under fell off by more than $3,000,000 but the next higher classification, that of 15 to 32 belt horsepower recorded a gain of over $7,000,000 and exports of the 33 and over horsepower type showed an increase of nearly $2,000,000. Shipments of tracklaying tractors and parts and accessories for tractors increased $2,500,000 and $1,500,000 respectively.

The new plant extension and offices erected by the Western Steel Products, Ltd., at Calgary, Alta., last spring already are taxed to capacity. Contract has been awarded to provide for further extension to care for the growing business.

Five Interests Make Two-Thirds of Country's Iron and Steel

Analysis of Capacity Statistics Discloses Heavy Concentration—Steelworks Control Bulk of Pig Iron Production

By E. C. Barringer

Associate Editor, Iron Trade Review

TWO-THIRDS of the capacity of the United States for making pig iron and steel ingots is concentrated in the five largest producers, and four-fifths of it in the ten largest.

Counting it as one unit, the United States Steel Corp. is by far the largest individual producer. Next, in order of their steel ingot capacities, come the Bethlehem Steel Co., Jones & Laughlin Steel Corp., Youngstown Sheet & Tube Co. and Republic Iron & Steel Co.

These five have a total annual ingot capacity of 40,348,500 gross tons, or 66.1 per cent of the 60,990,810 tons which the American Iron and Steel institute estimates as the country's capacity. These five annually can make 35,054,145 gross tons of pig iron, or 69.6 per cent of the country's potential of 50,367,665 tons.

Steel Corp. Well Balanced

Comprising the second block of five producers, still in order of their ingot capacities, are the Inland Steel Co., American Rolling Mill Co., Central Alloy Steel Corp., Wheeling Steel Corp. and Weirton Steel Co.

These two groups of ten producers have a combined capacity of 47,998,000 tons of ingots and 39,016,545 tons of pig iron. This is 78.7 per cent of the country's ingot capacity and 77.4 per cent of its pig iron capacity. It is noteworthy that the second group of five producers is not nearly so well fortified in the matter of pig iron as are the first five.

In its relation to the nation's steel ingot and pig iron capacities, the United States Steel Corp. is well balanced. The corporation's rating of 24,201,500 tons of ingots is 39.7 per cent of the estimated national total, while its 20,924,145 tons of pig iron constitutes 41.5 per cent of what the entire industry can make. When the Steel corporation brings in the 14 new open-hearth furnaces, with an annual capacity of about 1,500,000 tons of ingots, which it is to build at the South Chicago and Gary works of the Illinois Steel Co. its ingot percentage will be practically on a parity with its pig iron percentage.

Bethlehem Steel Co. is pre-eminent as the second producer of steel. On the basis of statistics provided by each company, the third position easily goes to the Jones & Laughlin Steel Corp. Provided the Youngstown, Republic, Inland and Central Alloy companies are merged, as rumors have been insisting for several years, there would be a consolidation of 8,219,000 tons of ingot capacity and the Bethlehem company would be forced into third place.

The first 13 producers of steel have blast furnace connections, and of the 35 leading producers of steel listed in the accompanying table, all but 12 have resources for making all or part of their pig iron. Only the Youngstown Sheet & Tube Co. has a pig iron capacity in excess of its steel ingot capacity, due in large measure to the acquisition several years ago of the Iroquois stacks at South Chicago.

Of these 35 producers of steel, accounting for 99 per cent of the tonnage of the industry, only two are of the "captive" type. The Wisconsin Steel Co. with an annual capacity of 670,000 tons of ingots and 516,000 tons of pig iron, is operated chiefly for the implement manufacturing subsidiaries of the International Harvester Co., while the Ford Motor Co. works, with a potential output of 600,000 tons of ingots and 300,000 tons of pig iron, is a segment of the widespread Ford automobile activity.

Capacity Figures Authentic

Capacity figures in the accompanying table are, in practically every case, those provided by the producers themselves and are up to date. The ranking is according to ingot capacity. A total of 60,254,000 tons out of an estimated 60,990,810 tons for the entire United States is represented. The pig iron statistics are incidental to those on ingots, but it is noteworthy that those interests which are primarily steel producers account for 43,948,795 tons of pig iron, or 87.2 per cent of the country's facilities for making merchant and steelworks iron.

How Producers Rank in Ingots, Pig Iron

Name of Producer	Steel ingots In gross tons	Pig iron In gross tons
United States Steel Corp....	24,201,500	20,924,145
Bethlehem Steel Co.	8,000,000	6,960,000
Jones & Laughlin Steel Corp.	3,270,000	2,800,000
Youngstown Sheet & Tube	2,717,000	3,170,000
Republic Iron & Steel Co...	2,160,000	1,200,000
Inland Steel Co.	1,800,000	950,000
American Rolling Mill Co.	1,557,500	821,400
Central Alloy Steel Corp...	1,542,000	540,000
Wheeling Steel Corp.	1,500,000	1,101,000
Weirton Steel Co.	1,250,000	550,000
Colorado Fuel & Iron Co...	1,200,000	585,000
Corrigan, McKinney Steel Co.	1,000,000	840,000
Otis Steel Co.	890,000	425,000
Lukens Steel Co.	700,000	.....
Wisconsin Steel Co.	670,000	516,000
Pittsburgh Steel Co.	600,000	480,000
Pittsburgh Crucible Steel Co.	600,000	383,250
Ford Motor Co.	600,000	300,000
Donner Steel Co.	570,000	432,000
Alan Wood Steel Co.....	550,000	400,000
Sharon Steel Hoop Co.....	480,000	156,000
Allegheny Steel Co.....	450,000	.....
Pacific Coast Steel Co.....	400,000	.....
Columbia Steel Corp.....	400,000	180,000
Interstate Iron & Steel Co.	396,000	.....
Bourne-Fuller Co.	360,000	120,000
Granite City Steel Co.....	360,000	.....
Worth Steel Co.	300,000	.....
Andrews Steel Co.....	350,000	.....
Gulf States Steel Co.....	300,000	115,000
Continental Steel Corp.....	250,000	.....
Central Iron & Steel Co.....	240,000	.....
Empire Steel Corp.	240,000	.....
Follansbee Bros. Co.....	200,000	.....
Wickwire-Spencer Steel Corp.	150,000	.....
Total	60,254,000	43,948,795

A nickel-coated steel pot of ductile pressed steel covered with a thick layer of nickel which resists oxidation

Nickel Coated Pots Show Longer Life

Pressed Steel Containers Are Coated with a Nonoxidizing Layer of Nickel

By G. R. Greenslade

Chief Physicist, Flannery Mfg. Co., Pittsburgh

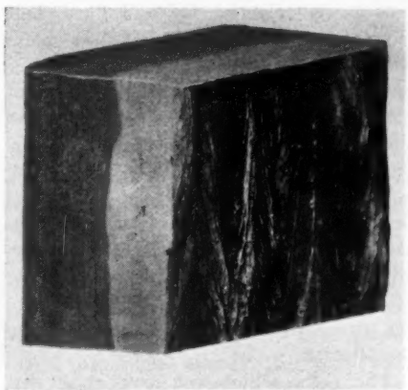
FREQUENT failures of containers for lead, salt, cyanide or caustic baths have lead to the development of a new type of heat-enduring pot. The pot consists of a low-carbon steel or iron ingot form, drawn from solid sheet. The outside is coated with nickel by metallic arc welding.

The steel on the inside of the pot which comes in contact with salt mixtures, cyanide, or lead, as the case may be, is capable of resisting the chemical and metallurgical action of the bath. The nickel covering on the outside resists the action of air and combustion gases at high temperatures. Under severe service, the new pots are said to have lasted over 7000 hours.

Metals Adhere Rigidly

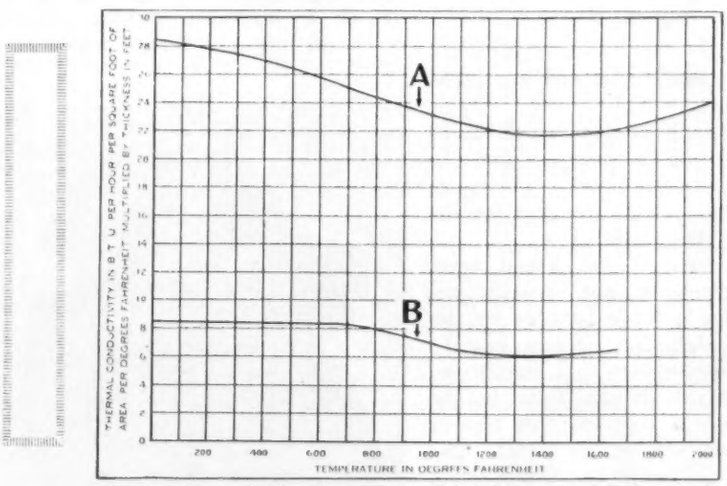
Various combinations of metals are used in manufacturing the pots and boxes suitable for different operating conditions, but for the majority of purposes, iron covered with a nickel is the most serviceable. These two metals are suited for joining, since their coefficients of thermal expansion are nearly the same. There is no tendency to force the two metals apart when they are heated to high temperatures. At 1650 degrees Fahr. the total difference in the expansion of the two metals is only 0.0008, that is to say, the relative change of length of the inner and outer layers of a nickel-clad pot would be 0.0008 of the original length. This is so small that the elastic properties of the materials enable them to absorb the expansion strains without causing failure.

When alloy steel pots are used as lead bath containers the molten lead gradually dissolves and leaches out the chromium and nickel from the pot walls. This deteriorating action progresses slowly until the pot becomes so weakened that it can no longer support the heavy load of lead. The new containers eliminate this defect by having the nonoxidizing metal on the outside where it is prevented from coming in contact with the lead by the intervening layer of steel. Lead and steel do not alloy at any temperature, though there is found to be a slight migrating or diffusing of microscopic globules of lead into the steel if the two metals are kept in contact at high temperatures for long periods of time.



Section of nickel-coated steel, indicating the relative thicknesses of the two metals and the degree to which the layers are welded together

After 3000 hours of operation in a lead bath furnace, one of the new pots was removed from service and sections were cut from the wall of the pot for analysis. One laboratory reported no lead presence and the other



Comparison of the thermal conductivities of nickel-coated steel and typical alloy steel used for containers. Curve A represents nickel-coated steel; curve B a 20 per cent chromium alloy steel

only a trace of lead in the inner wall.

In order to secure a large output in heat treating or cyaniding processes, it is necessary that a large amount of heat pass from the furnace into the bath. This makes it essential that the thermal conductivity of the pot be high. The new combination nickel pots, in combining two relatively pure metals of high thermal conductivity, have a high heat transfer factor.

Due to the strength and ductility of the metals used in the pot, a relatively thin wall is sufficient, as there is little danger of failure by cracking. This ductility and toughness eliminate also the danger of recrystallization and cracking from repeated heating and cooling and furnish the necessary flexibility to take care of the warping and settling of the furnace.

From an article appearing in "Inco," the house magazine of the International Nickel Co., 67 Wall street, New York.

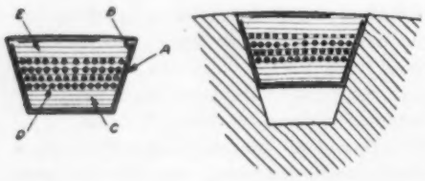
Bridge Model Is Tested

Tests have been carried out on a 9-foot brass model to determine the correct and safe design for the Kill van Kull bridge, a new structure which will link Staten Island to New Jersey. Both model and bridge were designed by engineers of the bridge department of the Port of New York authority. Kill van Kull bridge, with approaches, will have a total length of about 8073 feet, the main arch having a span of 1675 feet. Exclusive of approaches the bridge will contain 34,500,000 pounds of steel of which approximately half will be manganese and silicon steels. Estimated cost of the structure is placed at $18,000,000.

V-Belts Are Proving Advantageous

ELASTIC V-shaped belts in multiple drives have been adopted for widespread use in many branches of industry. Such drives are applicable to almost any type of service and their use has solved many baffling power transmission problems.

This type of drive has a number of interesting advantages. In the first place short centers are possible, so that minimum floor space is required for a drive. It is also possible to increase the speed ratios and use high-speed motors.



V-belt cross section showing duck, A and B; rubber, C and E; cord layers, D

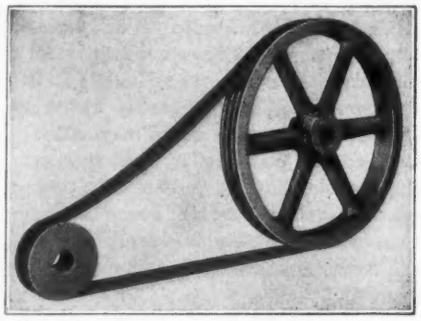
The efficiency of the V-belt drive has been shown on numerous tests to be 98 per cent or better. This compares favorably with the practice obtained with the chain drive.

With a drive of the V-belt type, bearing pressures are greatly reduced. This is made possible by the fact that high belt speeds can be used and by the fact that due to the wedging action of the belts in the grooves there is practically no tension on the return side of the V-belt. The total belt tension in the V-belt drive while running is practically equal to the driving tension.

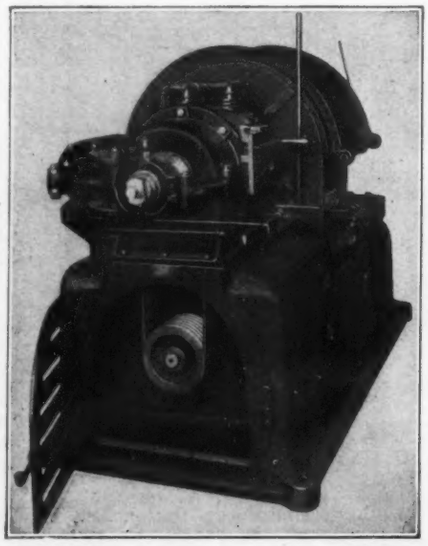
V-belts are available for transmitting power from a fraction of a horsepower up to 200 and more horsepower and they may be used for either reducing or increasing speeds. In nearly all cases it is possible to secure them for any required center distances. This is made possible by the large selection of standard belt lengths in which these endless belts are available.

One of the most recent developments in V-belt drives is known as the flex-more drive made by Fairbanks, Morse & Co., Chicago. The new drive is the result of numerous field and dynamometer tests to determine the factors of belt angles, slippage, the life of belts, character of the various materials entering into the drive, and power capacity of an installation.

The belts which are used with this drive are built up of an outer belt jacket of duck which has been treated with rubber to improve its wearing qualities. This jacket consists of two layers af duck enclosing a core made up of a layer of rubber, several layers of rubber-embedded cords, and another layer of rubber above the cords. The layer of rubber below the cords is specially compounded to withstand repeated compression, while the layer of rubber above the cords is specially compounded to withstand repeated tension. The rubber-embedded cords are laid at the neutral axis of the belt, where there is the least tension or compression. These cords are made of long staple cotton and the construction is similar to that which is used in cord tires. The various elements of the belt are assembled in the mold and vulcanized together into a unified structure.



V-belt drive showing sheaves and belts



A typical short center vertical drive

The sheaves are made of semisteel and have been designed with particular reference to the angle and depth of the grooves, so that the belt slippage is a minimum. At the same time the relation between the angles of the belt sides and the grooves are such that the belt makes a gradual contact with the grooves as it bends around the sheaves. Due to the wedging action of the belts in the grooves and to their inherent elastic qualities there is no sudden grabbing of the load and sudden shocks to the driving and driven machines are eliminated.

Large Uses of Steel in Small Ways

Waste Receptacles	*147th Article*

ELIMINATION of fire hazards, and rigid construction are features of steel waste receptacles. Many are in use in manufacturing plants

HYGIENE and sanitation find their roots in the Ages. But perhaps in no time in all history has advancement along these essential lines to health and well-being been in any way comparable to that of recent years. To this end research and modern appliances have gone hand in hand in performing an important contribution. Yet of scarcely less importance in this country has been the vast educational work, fostered particularly by the government, large insurance companies, schools, colleges and the medical profession.

This accelerated movement finds reflection in numerous demands for steel. In the series, "Large Uses of Steel in Small Ways," extending over several years, many articles have been described whose primary purpose is the promotion of hygiene. From a tonnage standpoint it is doubtful if any one, aside from such items as pipe and other items in the plumbing group, consumes a more substantial tonnage of steel than waste receptacles. It is authoritatively estimated this product consumes close to 1000 tons of steel annually.

The receptacles of various types find application indoors and out. Municipalities buy large numbers of them for use in streets and parks. New York city, incidentally, obtains many of them from Sing Sing prison. These are of a cylindrical type with a fixed visor hood. Other standard types are used in schools, theatres, hotels, hospitals, industrial plants, dental offices, barber shops and numerous other places. Recently a mid-western railroad ordered approximately 100 of one type for library cars in an effort to reduce fire hazard. The receptacles are made of sheet steel in gages commensurate with their sizes, the larger sizes having angle steel at their corners for rigidity and to provide a support to keep them above the floor or ground level. They are finished with baked enamel in brown, gray, green, white and grained mahogany.

Industry Comparatively Young

The industry is not old. One of the first manufacturers in the field established his plant about 15 years ago, though the greatest demand has developed in the past five years, and several large producers now are in the field.

Manufacturers list the following advantages of the steel receptacles; long wearing, rigid construction; strong corner angle reinforcement protecting the receptacles against rough usage; rain, snow and insect proof; elimination of fire hazard; easy removal of contents.

The typical receptacle used in public places is provided with one or more swing doors in the hood, and the waste is caught in bags, and the bags removed through a door in the side. Galvanized, copper-bearing and black sheets generally are used in their manufacture.

THIS is the one hundred forty-seventh of a series of articles dealing with some of the obscure uses of steel which go far toward absorbing the American tonnage.

Among articles appearing every two weeks and not included in Vol. I containing 51 separate descriptions are:

Swords	*Bathroom Fixtures*
Paving Guards	*Snow Fences*
Reaction Kettles	*Stairs*
Fire Screens	*Cork Screws*
Voting Machines	*Universal Shafts*
Display Racks	*Sewing Machines*
Steel Stamps	*Lanterns*
Wire Screens	*Cleats*
Typewriter Spools	*Axes*
Chain Hoists	*Steel Ceilings*
Newspaper-Vending Boxes	*Card Tables*
	Welding Rods
Wire Lamp Shades	*Washing Machines*
Belt Fasteners	*Resilient Road Guards*
Sap Spouts	*Screw Drivers*
Flexible Conductors	*Windows*
Foundry Flasks	*Car and Bus Seats*
Teletype Machines	*Bathroom Cabinets*
Porch Furniture	*Lock Washers*
Telegraph Wire	*Steel Scaffolding*

Institute Will Convene

Semiannual meeting of the Concrete Reinforcing Steel Institute will be held Sept. 30-Oct. 2 at Wawasee hotel, Wawasee, Ind. Opening session will be held Monday evening, Sept. 30, followed the next day by a business session in the morning, semiannual golf tournament in the afternoon and a banquet in the evening. Regular sessions of the institute will be conducted Wednesday morning and will deal principally with concrete rib floor construction.

Department of engineering research, University of Michigan, Ann Arbor, Mich., as a part of its research study of metals at elevated temperatures, has issued a report dealing with lead alloys containing varying small percentages of antimony, alloys used extensively in coating underground power cables.

Concrete Bar Demand More Widely Scattered in First Half

Illinois, New York and California Still Chief Buyers but Their Lead Dwindles—Lackawanna Purchase Is Largest

By Robert T. Mason

Associate Editor, Iron Trade Review

DIFFUSION of concrete reinforcing bar consumption continues, according to the third semi-annual survey by IRON TRADE REVIEW. Data are based on the weekly reports of concrete reinforcing bar awards in IRON TRADE REVIEW, corrected to eliminate duplications and variations in tonnage. Although the leading consuming states, Illinois, New York and California, continue to dominate the market, their proportionate share of business has decreased.

In the first half of 1929 those three states took only 44.18 per cent of the total reported, compared with 58.83 per cent in the same period of 1928 and 52.38 per cent in the last half of 1928. In the six-month period in review, Pennsylvania showed the most marked growth in consumption, passing both California and Ohio. New Jersey also increased in its rank. Other leading states and their proportion of total consumption follow:

	Per cent of Total		
	January-June		July-Dec.
	1929	1928	1928
Illinois	17.15	27.70	23.18
New York	16.17	12.24	17.19
Pennsylvania	11.75	9.07	6.46
California	10.86	9.89	12.01
New Jersey	9.71	.....	6.98
Washington	8.36	5.49	7.11
Ohio	5.70	12.93	7.16
All other states	20.30	22.68	19.91
	100.00	100.00	100.00

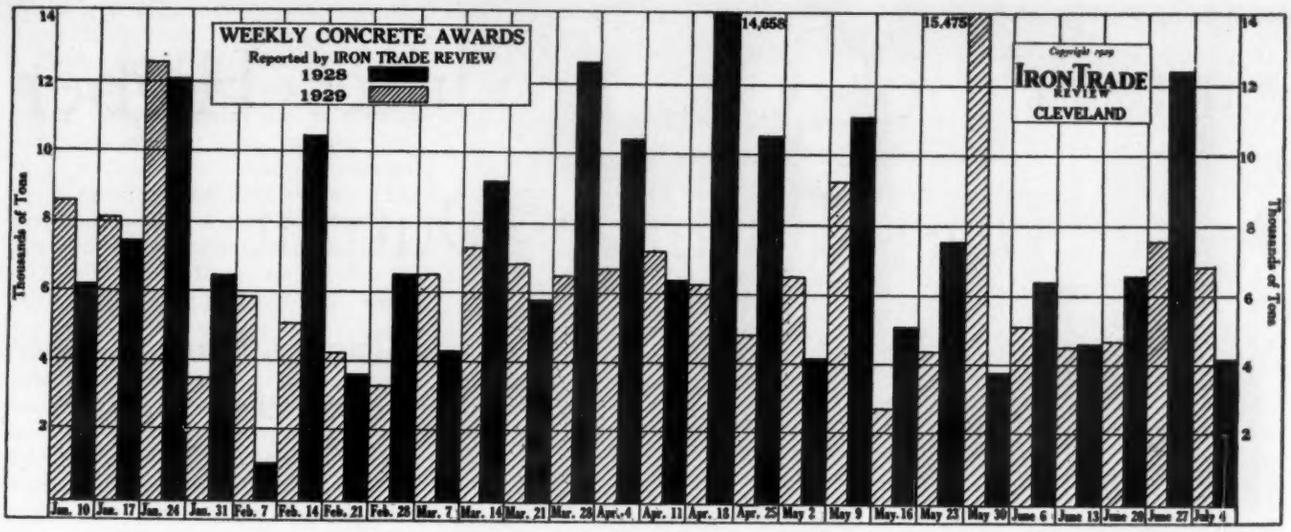
Thirty states and the District of Columbia are included in the following tabulation listing the number of projects reported and the tonnages involved. Most of the states not listed undoubtedly consumed more than 100 tons of concrete bars during the first six months of 1929. IRON TRADE REVIEW, however, recognizes 100 tons as the minimum of importance for a contract and consequently the large bulk of material placed in 5 to 50-ton lots is not included in the survey. It is fair to assume that states having large tonnage projects require the same proportion of small lots.

The number of projects and tons required by states in the first halves of 1928 and 1929 follow:

	January-June			
	No. of Proj.		Tons	
State	1929	1928	1929	1928
Alabama	2	2	1,000	256
Arizona	2	1	600	263
Arkansas	2	1	750	600
California	74	43	18,491	18,838
Colorado	....	2	.....	380
Connecticut	1	6	175	2,400
District of Columbia	6	2	5,075	580
Georgia	....	3	.....	300
Idaho	1	....	100	.....
Illinois	101	112	29,203	52,748
Indiana	6	2	1,070	760
Iowa	4	3	950	1,150
Kansas	1	....	800	.....
Kentucky	1	....	300	.....
Louisiana	2	2	600	850
Maryland	9	12	3,050	2,660
Massachusetts	6	18	2,117	11,935
Michigan	8	1	2,600	250
Minnesota	6	....	3,350	.....
Mississippi	2	3	950	625
Missouri	7	23	4,760	4,685
Montana	1	....	121	.....
New Hampshire	....	1	.....	300
New Jersey	31	21	16,540	9,380
New York	67	55	27,530	23,320
North Carolina	3	4	375	707
Ohio	39	39	9,703	24,635
Oklahoma	1	....	175	.....
Oregon	2	6	682	1,302
Pennsylvania	33	72	19,615	15,375
Rhode Island	....	3	.....	500
South Carolina	....	2	.....	420
Tennessee	2	1	650	150
Texas	3	3	1,300	1,975
Utah	....	1	.....	155
Vermont	....	1	.....	100
Virginia	....	2	.....	750
Washington	40	38	14,237	10,461
West Virginia	....	5	.....	450
Wisconsin	6	4	2,260	1,176
Miscellaneous	6	....	1,085	.....
Totals	475	494	170,214	190,436

Distribution by States and Uses

	Commercial		Residential		Industrial		Public Bldgs.		Roadwork		Bridges, Piers	
States	No. Proj.	Tons	No. Proj.	Tons	No. Proj.	Tons	No. Proj.	Tons	No. Proj.	Tons	No. Proj.	Tons
Alabama	....	.....	....	.....	....	.....	1	350	....	.....	1	650
Arizona	1	200	....	.....	....	.....	....	.....	....	.....	1	400
Arkansas	....	.....	....	.....	....	.....	1	150	1	600	....	.....
California	9	2,760	24	5,734	11	2,863	12	2,543	10	1,906	7	2,545
Connecticut	1	175	....	.....	....	.....	....	.....	....	.....	....	.....
Dist of Col.	2	450	....	.....	....	.....	4	4,625	....	.....	....	.....
Idaho	....	.....	....	.....	....	.....	....	.....	....	.....	1	100
Illinois	24	7,192	23	6,745	26	7,426	16	3,890	6	1,130	6	2,820
Indiana	2	490	....	.....	2	350	....	.....	2	230	....	.....
Iowa	....	.....	1	300	2	350	....	.....	1	300	....	.....
Kansas	....	.....	....	.....	1	800	....	.....	....	.....	....	.....
Kentucky	1	300	....	.....	....	.....	....	.....	....	.....	....	.....
Louisiana	....	.....	....	.....	1	500	1	100	....	.....	....	.....
Maryland	1	400	....	.....	4	2,100	2	200	....	.....	2	350
Massachusetts	1	1,100	....	.....	3	667	1	125	....	.....	1	225
Michigan	....	.....	....	.....	3	600	1	100	1	100	2	1,700
Minnesota	2	2,100	1	100	3	1,150	....	.....	....	.....	....	.....
Mississippi	2	950	....	.....	....	.....	....	.....	....	.....	....	.....
Missouri	....	.....	1	100	2	1,050	3	810	....	.....	1	2,800
Montana	....	.....	....	.....	....	.....	....	.....	....	.....	1	121
New Jersey	3	725	....	.....	8	10,555	7	2,180	7	1,380	6	1,700
New York	15	6,570	....	.....	15	6,895	13	2,475	7	2,085	17	9,505
North Carolina	....	.....	1	175	....	.....	1	100	1	100	....	.....
Ohio	10	3,415	2	1,165	15	3,050	7	1,270	3	303	2	500
Oklahoma	....	.....	....	.....	....	.....	1	175	....	.....	....	.....
Oregon	....	.....	....	.....	....	.....	....	.....	....	.....	2	682
Pennsylvania	4	1,100	1	500	12	7,625	11	4,615	2	225	3	5,550
Tennessee	1	400	1	250	....	.....	....	.....	....	.....	....	.....
Texas	2	700	....	.....	....	.....	1	600	....	.....	....	.....
Washington	6	3,050	6	1,275	8	2,281	8	2,575	4	700	8	4,356
Wisconsin	4	400	....	.....	....	.....	1	1,250	1	160	2	450
Miscellaneous	....	.....	....	.....	....	.....	....	.....	....	.....	6	1,085
Total	89	32,477	61	16,344	116	48,262	92	28,133	46	9,219	69	35,539



Examination of the table showing consumption by type of use reveals that industrial buildings were the most numerous of all contracts reported. Public buildings, including municipal, fraternal, religious, hospital, etc., were the next most numerous with 92 contracts. Commercial buildings, such as lofts, office structures, theaters, etc., were close behind with 89 contracts. Roadwork suffers from the nature of the contracting, most awards being for portions of a job, involving small amounts each and consequently not being listed.

Numerous Large Contracts

The largest single contract placed during the six months was 7780 tons for a terminal warehouse for the Delaware, Lackawanna & Western railroad in Hoboken, N. J. Other large jobs included 4000 tons for the Columbia-Wrightsville bridge over the Susquehanna river in Pennsylvania; 3000 tons for a water tunnel from Yonkers to Brooklyn, N. Y; 3000 tons for a warehouse in Philadelphia for Reading Co.; 2800 tons for River des Peres sewer, St. Louis; 2600 tons for freight warehouse of Pennsylvania railroad in Philadelphia; 2550 tons for Cushman Dam project at Tacoma, Wash.; 2500 tons for Holland tunnel Plaza building, New York; 2300 tons for department of commerce building, Washington, and 2000 tons for Exchange building, Seattle.

Sears, Roebuck & Co., Chicago, continued to be one of the most active purchasers in the concrete reinforcing bar market. This organization placed contracts for one building each in California, Indiana, Kentucky, Tennessee, Minnesota, Washington, D. C., New Jersey, two each in Texas and Pennsylvania, and three in New York. Most of these contracts involved 300 tons or more.

Employers Must Work To Hold Apprentices

(*Concluded from Page* 382)

fidence if transfers from one operation or machine to another or raises in pay are not promptly forthcoming; these are essential parts of apprenticeship agreements.

The second effective way of maintaining the morale of apprentices is to create and uphold a powerful group consciousness among them. There is strength in numbers, and the apprentice who is discouraged will soon recover if he is made to realize that many others are in the same position as he is and are beset by similar problems. No matter how dejected and doubtful an individual may feel, he is not likely to express such feeling to his fellows. In a crowd each individual is stronger than he would be by himself, and each apprentice if left alone will give up his apprentice training more readily than if he must admit to his fellows that he has failed.

Regular meetings of apprentices will be found effective in building morale. Such meetings may be devoted to discussion of faulty tendencies or behavior, to encouragement of favorable features of work and conduct, to announcement of new regulations or courses, or to addresses by special speakers. These reasons would justify the holding of meetings, but the most important purpose is to get the apprentices together, to give them an opportunity to become acquainted with each other, to see how many of them there are, to make them realize the influence which they can exert when working together, and to impress each with the success of the others.

Other methods have been found practical for building up group consciousness. The apprentice supervisor will make no mistake by continually pointing out, either in meetings or through house organs or apprentice publications, successful graduate apprentices, regardless of whether they are employed in the same organization or elsewhere. The apprentices will react favorably when they receive information concerning the promotion of former apprentices to positions of responsibility.

Of vital importance is the arrangement of work of apprentices and their position in the shops in such a way that they all meet frequently; if possible, a number of times a day. It is a good plan to have all the apprentices in a department work as nearly together as they can without disturbing each other.

Apprentice Club Valuable

A well organized apprentice club or association is a benefit, but it cannot be expected to succeed if it is fostered too energetically by the employer. The purpose of such an association may be technical or social. If technical, the association will cooperate with local school authorities, technical societies and libraries. A social organization will arrange for picnics, smokers, dances and dinners. An annual banquet can be made a splendid success. An organization of this kind will thrive best if it is turned over to the boys and they are permitted to elect their own officers, appoint their own committees, and really conduct the organization.

Employers will be successful with their apprentice training work if they take it as seriously as any other department of their business, and devote to it much thought and hard work. Experience proves that the plan will not succeed otherwise.

Sintering of Ore Produces Higher Blast Furnace Output

Modern Welsh Plant Fuses Fine Materials Into Good Quality, Porous Clinker Which Reduces Slipping and Sticking in Stacks

By W. E. Simons

Cardiff Works, Guest, Keen & Nettlefolds Ltd.

SINTER is ideal for blast furnace use, because it is porous, exposes large surfaces to the reducing gases, and is fairly fusible. Good sinter should be strong physically, porous, and free from fines. In appearance it is like hard boiler clinker, and is dark blue in color.

The practice at some Continental plants is not to put anything into the blast furnace smaller than 1-inch cube. Besides higher outputs and lower fuel consumptions, less flue dust is made; lower blast pressures, less slipping and sticking occur, and more regular working of the blast furnace is obtainable. The preparation of materials in Great Britain has been badly neglected. Few plants have any crushing or screening plants.

In the operation of separating the fine ores by screening and sintering at the Cardiff works of Guest, Keen & Nettlefolds Ltd., Cardiff, Wales, the result has been consistently higher output, and the coke consumption has been reduced by about 110 pounds, the amount of sinter used varying from 16 to 25 per cent of the ore burden. In addition to separating the fines, the lumpy ore and limestone are crushed to uniform size.

All the material is brought to the sinter plant in hopper-bottom cars. They are discharged into a bunker, from which the material is elevated on an inclined belt and can be passed into either the crushing plant, or, if sufficiently fine, into the bunkers. This belt passes over a magnetic pulley for the removal of tramp iron.

From the crushers the materials are conveyed to their respective bunkers by means of rubber belts. There are two rows of bunkers, six ore bunkers in one row, and, adjoining them, one large bunker for flue dust and a large one for coke. The flue dust and coke bunkers each have twice the capacity of an ore bunker. One of the ore bunkers being used

Fig. 1—Interior of the sinter house. The charging car is shown in the foreground with a full pan at the left and an empty one at the right

for return of fine sinter, which is sintered again.

Each bunker is emptied by an apron belt, driven by a ratchet mechanism. To regulate the amount of material leaving each bunker there is a vertical slide, which is adjusted by a ratchet-wheel and a pawl. The ore, the coke, and flue dust are discharged on to horizontal rubber belts which transfer them on to an inclined belt running into the sinter house.

Briefly, the operation of sintering consists of mixing fine iron ore, coke, and flue dust; this mixture is placed in a circular steel pan, and ignited by means of oil burners, a motor-driven fan drawing air through the pan. When burned, the fine materials have fused into a dark blue clinker. The pan is then tipped, and the sinter is conveyed into a railway wagon ready for use. The sinter house is 146 feet long, and the width from the center lines of the roof columns is 40 feet. Running the whole length of the building is a gantry crane, the span of which is 37 feet, the height of the rails is 22 feet above the main floor level. Fig. 1 gives a general view of the interior of the sinter house.

On one side of the sinter house is an annex in which is situated the receiving hopper and feeding gate, the mixer, elevator, and charging bin. On the same side, farther down, the fan house adjoins. On the other side of the building is a gantry crane, of the same span, height and length as that in the sinter house. It is used for handling the finished sinter.

Sinter Pans Are Steel Castings

The sinter plant is a 12-pan unit, the pans being placed in two rows of six each. At present only eight pans have been installed, and the remaining four are now being put in. Each pan is 8 feet, 6 inches diameter, 12 inches deep, and holds from 1.5 to 1.75 tons of finished sinter. It is made of four-ribbed circular steel castings, machined and bolted together. Two sections have trunnions for lifting, and the other two have a short additional rib, which is used when the pan is placed in the tippler. Across the bottom of the pan are bolted four equally spaced bearer bars, on which the firebars are placed. The latter are of cast iron, and are arranged to interlock on the bearer bars, so as to prevent any displacement of bars, when the pan is turned over. On the inside circumference of the pan a number of steel ribs are cast on an inch above the firebars, and under them are placed curved mild steel bars of rectangular section which lock the firebars around the circumference. These locking bars are kept in position by studs screwed into the firebars. Bolted on the bottom of the pan is a dish, 11 inches deep, made of mild steel plates. Between the pan and the dish is an asbestos ring to make an air-tight joint. In the middle of the bottom of the dish is a steel casting with a bored hole 1 foot in diameter, through which the air is drawn. This casting fits on to the valve connecting the pan with the fan suction.

The material to be sintered is brought up by an inclined belt from the bunker house, and is put into a circular bunker, the latter being emptied by a circular revolving gate and a plow, and the material is passed on a rubber belt to the mixer, which consists of a steel drum 5 feet diameter, and is fitted inside with angle irons to facilitate the mixing. The mixed material is discharged into an elevator and taken up into the charging bunker.

The charging car, which passes under the charging bunker, can accommodate two pans; an empty pan is filled while a full one is being tipped. It is driven by a 10-horsepower motor, and by means of clutches it can travel or rotate either pan. An empty pan is placed on the charging car, and a small quantity of rubbly return sinter is put on the bottom of the pan for bedding. The pan is then brought under the charging bunker and filled by opening the special electrically-operated segment gate fitted to the bunker. By revolving it even filling is attained. When the pan is full the charging car moves out from under the bunker and comes under the gantry crane. A little anthracite duff or coke breeze is thrown over the pan to facilitate the ignition. Fig. 2 shows the charging bunker and a pan being filled.

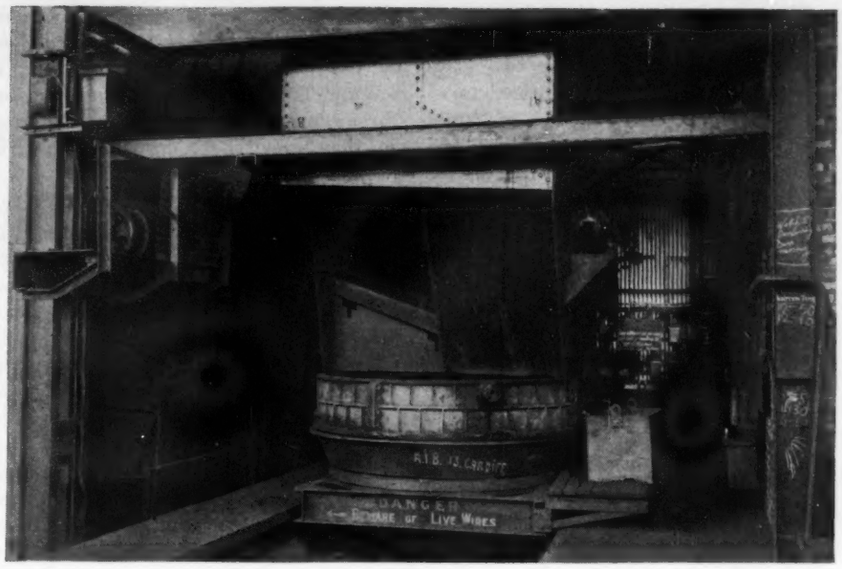


Fig. 2—Charging bunker with the pan underneath being filled

SINTERING and the important part it plays in increasing blast furnace production and reducing coke consumption is gaining recognition in Great Britain. The preparation of materials and the policy not to introduce anything into the blast furnace smaller than 1-inch diameter cubes, being practiced on the Continent, has resulted in increased output, lower fuel consumption, less slipping and sticking, as well as more regular operation of stocks. Good sinter should be physically strong, porous, and free from fines, according to W. E. Simons, Cardiff works of Guest, Keen & Nettlefolds Ltd., Cardiff, Wales, whose accompanying paper describing a modern plant, was presented before the British Iron and Steel institute, early this year.

Cranes Handle Sinter Pans

The overhead crane brings back an empty pan from the pan tippler and puts it on the charging car; the latter with a full pan and an empty one is shown in Fig. 1. The crane then places the full pan in one of the stands, which are built up of mild steel sections riveted together. When the pan is lowered into position a valve automatically opens, and suction from the fan is applied to the pan. Similarly, when the pan is lifted this valve automatically closes and shuts off the fan suction.

The pan is then ignited by means of an ignition car, which runs on a track situated between the two rows of pans. The ignition car consists of a rectangular framework of mild steel sections riveted together and mounted on four wheels. On top of a king post fitted in the middle of this framework is fixed a beam, at one end of which the ignition apparatus is suspended, and at the other end is a cast-iron balance weight. Between the ignition apparatus and the balance weight the fuel oil tank is placed. The ignition car is driven by a 5-horsepower reversible motor, and by means of clutches either the car can be made to travel or the beam can be rotated.

Ignition is accomplished by fuel oil and compressed air. The air, at a pressure of 75 pounds per square inch, is supplied by a 2-stage compressor situated in a building adjacent to the fan house. A flexible hose is connected onto a T-piece on top of the oil tank to put the oil in the tank under pressure. The compressed air then passes through a set of three small tubes across the hood to the three burners. As each burner is movable, a length of this tubing has to be flexible. The oil under pressure is conducted to the burners by a similar set of tubes. On each burner are two regulating cocks, one for air and the other for oil.

To ignite the pan the hood first is lowered over the pan. The compressed air hose is then connected to the supply and the compressed air cocks on the burners always are left open. The oil is then turned on at each burner and lighted with a torch. To obtain a uniform ignition throughout, the burners are oscillated so that every portion of the pan is covered by the flames.

The time of ignition is from 1 to 2 minutes. When the ignition is completed, the oil first is turned off. The hood is then raised, the compressed air turned off, and the load disconnected. The time of sintering is from 1 to 1½ hours, depending upon the materials being sintered. The oil consumption is 0.5 to 0.6 gallons per ton of finished sinter.

The fans are placed in a building adjoining the sinter house. There are eight pans installed, and there are four fans direct-coupled to two fan motors, which are each of 135 horsepower and rotate at a speed of 2300 revolutions per minute. The exhaust gases pass from the fan through a tunicle pipe to the chimney flue. The fan suction is about 30 inches at the commencement of sintering, and decreases as the pan is sintered.

Frame Rotated by Motor

When the pan is sintered it is conveyed by the overhead crane to the tippler gear, shown in Fig. 3 with a pan fixed in it. The tippler gear, consisting of a rectangular frame into which the pan fits, is fixed on top of a bunker for containing the finished sinter. The frame is rotated by an electric motor, and the sinter drops out of the pan. When the crane driver has placed the pan in the tippler he moves back in the crane to the tippler controller, placed about 10 feet from the tippler and so arranged that he can work it by simply putting his hand out of the cab window. After the pan is tipped the crane takes the empty pan away and lowers it onto the charging car to be filled again.

The receiving bunker for the finished sinter has a sloping bottom, enabling the sinter to easily empty out of it and consisting of cast-steel screening bars of ⅝-inch mesh. Through these screens the rubble and fine sinter pass into a rotary screen which has ⅜-inch diameter holes. The rubble is discharged to an elevator which puts it into a small bunker. It is then used for bedding. The main bunker discharges directly into a skip. The fines which are screened out pass into a bunker underneath the sinter bunker. In front of the latter is a rectangular pit, into which is lowered a rectangular skip suspended from the outside overhead crane.

To empty the fine sinter bunker the skip is lowered to the bottom of the pit, and the gate is also opened from the crane cab. If the finished sinter is hot it can be sprayed with water while in the skip, prior to being tipped. The fine sinter is put into wagons, and is passed through the plant to be again sintered. This arrangement of disposing of the finished sinter has been found cheap and efficient. The total power consumption excluding the crushing plant is 15 to 16 kilowatts per ton of finished sinter.

While the purpose of sintering is the agglomeration of fine materials, the process is greatly facilitated by the presence of a fair amount of small rubbly material, up to ¼-inch cube. Should the material be above this size it is necessary to crush it, as it is too big to fuse into sinter. All the coke breeze is crushed down to ¼-inch cube; it is advantageous for the coke breeze to be rubbly. Otherwise it burns too quickly.

All the materials as they are delivered into the mixer are usually dry. Inside the mixer is a fine spray of water for wetting the material as it is mixed. The mixed materials should contain about 15 per cent water; this is necessary to keep the mixture open while it is being sintered in the pan.

All the materials should be free from lime. Lime and silica fuse together at a low temperature, which causes the materials to fuse into a dense mass that sticks in the pans.

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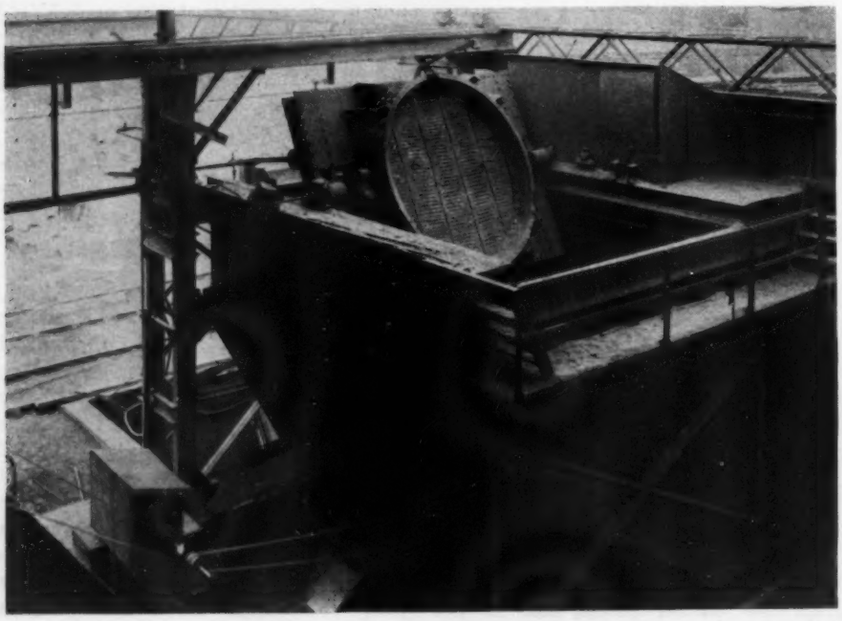


Fig. 3—When the pan is sintered it is conveyed by the overhead crane to the tippler gear shown here with a pan in it

New Books Worth Reading

SCIENCE ECONOMICS BUSINESS

What of the Small Plant?

Industrial Relations Programs in Small Plants, cloth, 60 pages 6 x 9 inches; published by National Industrial Conference board, and supplied by IRON TRADE REVIEW for $1.50, plus 15 cents for postage; in Europe by Penton Publishing Co., Ltd., Caxton House, London, for 7s 6d.

As the result of an unexpected discovery the National Industrial Conference board undertook this study. It had been assumed that industrial relations efforts were largely in the field of the large industrial corporation, taking the place in some measure of the employer-employe relation lost in large organizations. Inquiry revealed that smaller organizations were undertaking this work to an unexpected degree. The study which forms the basis of this volume was deemed advisable to give a picture of efforts and results in this field.

Executives of companies of moderate size may obtain from this study some guidance in efforts to better relations with employes and may be able to avoid some of the mistakes of pioneers working along the same line.

The study is based on the experience of 4440 plants, employing more than 400,000 persons. From the investigation are developed answers to the questions as to whether the smaller organizations can apply all the leading activities utilized by the larger, relative cost and the attitude of management of small establishments toward each form of activity.

* * *

How to Help Employes Save

Employe Thrift and Investment Plans, by the National Industrial Conference board, paper, 114 pages, 6 x 9 inches, published by the Conference board, and supplied by IRON TRADE REVIEW, Cleveland, for $1, plus 15 cents postage.

This book is a valuable guide for employers contemplating the adoption of a thrift plan for employes, and also for those who have a plan in operation and wish to understand more about the subject. In 1927 the National Industrial Conference board found 389 companies which had sold or were selling securities to their employes. In the 315 companies which provided detailed information, stock with a value exceeding a billion dollars was owned or being paid for by more than 800,000 employes. The board now has gone a step further and made a thorough analysis of other types of thrift plans, including all of those in which the employe's savings can be readily converted into cash. Data were obtained from 319 companies, which combined employ one and a third million wage earners. The plans are divided into three main groups: Saving in cooperation with banking institutions; employer-employe savings and investment plans, and savings combined with loans. These are described in detail. A chapter is devoted to employers' experience with these plans. Typical results are set forth in tabular form. The book contains many legal forms in use applying to various thrift plans, and a selected list of companies having some type of thrift plan in operation.

* * *

How the South Is Growing

Blue Book of Southern Progress, paper; 292 pages, 6 x 9 inches; published by *Manufacturers Record* and supplied by IRON TRADE REVIEW for 50 cents, plus 15 cents for postage, and in Europe by Penton Publishing Co. Ltd., Caxton House, London, for 3s.

That the South is a growing and developing part of the United States is a cardinal principle of the publication issuing this annual volume. To give reality to the idea the author need only present the statistics of growth as they are compiled each year and draw comparisons with the past. This is done completely in this volume. It presents a picture of the changing conditions in the South as industry spreads and assumes a steadily increasing importance.

Not only are figures and facts presented in a wealth of detail but numerous illustrations show graphically what is being accomplished. The book is prepared by friends of the South and the picture is of value to all who seek business in that section and those who desire to keep abreast of the changes being wrought in this important section of the United States.

* * *

Structural Steel in Nutshell

Facts About the Structural Steel Industry, by American Institute of Steel Construction Inc.; 128 pages, 5½ x 8 inches; published by the institute and supplied by IRON TRADE REVIEW for 50 cents each, plus 15 cents for postage, and in Europe by Penton Publishing Co. Ltd., Caxton House, London, for 3s.

A distinct service to the industry is performed by the institute in assembling a great deal of pertinent information relative to structural steel and presenting it in compact form. It is to be an annual publication and some data now known to be missing or incomplete will be brought to date in succeeding issues as opportunity offers.

The initial section is devoted to the institute, its membership, committees, meetings, purpose, and historical facts connected with the formation of the organization. The historical development of steel and iron next is taken up. A list is presented of the world's tall buildings and some of its notable bridges, a bibliography of structural steel and a list of motion pictures on steel construction. A list of publications of the institute guides the seeker for information to the source of much authoritative information. Growth of the industry is presented in a number of graphs, backed up by the statistics from which they are drawn.

Not the least interesting section is the glossary in which are defined a large number of terms in common use in the industry.

Muskegon Piston Ring Co., Muskegon, Mich., has increased its capital from 66,000 shares to 126,000 shares no par value.

Castings for special service are given heat treatment ranging from short normalizing to higher temperature anneal, water quenching and steam ageing

New Aluminum Foundry Equipped To Assure Accurate Control

Every Step in Manufacturing Processes Is Given Minute Technical Supervision in Connecticut Plant

THE Aluminum Company of America recently has completed a new sand cast foundry at Fairfield, Conn., which embodies the latest practice in producing high grade aluminum castings for varied service. This plant was inspected Aug. 8 by a party of 35 editors of business, technical, trade and daily papers under guidance of W. C. White, advertising manager, and D. B. Hobbs of the Pittsburgh office of the Aluminum Company of America.

Local officials who acted as hosts on this occasion included S. K. Becker, plant manager; P. O. Seiser, foundry superintendent; H. R. Doswell, manager of the technical division; W. J. Granville, production manager; G. A. Lewis, in charge of the inspection department.

In constructing its new plant which includes a modern office building, a pattern storage, boiler and engine building and the main foundry, the Aluminum company has made every possible use of its own metal. Aluminum lighting fixtures, stair rails, furniture and practically all building hardware throughout is of some aluminum alloy, the metal being used even for interior mechanism of locks with the sole exception of the springs. All interiors are painted with a liquid, the color element of which is aluminum bronze powder, and aluminum furniture is used in all offices.

In addition to complete melting equipment including refining furnaces, three electrical resistance furnaces hold metal at proper pouring temperatures

The pattern storage vault, as completely fireproof as it is possible to build a modern structure, contains more than 5000 patterns ranging from special castings for nav-

igating instruments, radio finders and large parts for navy and airplane service to bus cowls, lamp posts, rubber molds for overshoes and hundreds of other specialties. The increase in the use of aluminum for architectural effects is typified by patterns of decorative design.

The company operates its own power plant and generates its own current.

The foundry has been designed to take advantage of straight line production The melting facilities available include 60 furnaces, three employing the electrical resistance principle of heat used as holding furnaces to assure accurate temperatures at pouring, two remelting and refining furnaces, one revolving and one stationary, and 55 pot-type oil-fired furiaces of the company's own manufacture.

Accurate control of time and temperature is effected by centralized supervision in an instrument room overlooking the main melting department. Direct reading pyrometers which may be connected at will with any one of the furnaces permit those in charge of the melting to note the temperature, the time of charging and the time of tapping for every melt. When the proper temperature is reached, a signal lamp is flashed on the board adjacent to the furnace to be tapped. The pouring gang is given a minimum of time to pour the furnace and deliver the metal to another pyrometer station where the metal is skimmed and the temperature permitted to fall to the point where castings are to be poured.

The technical division provides skimmer cores in the runner of each casting which regulate the flow of metal so that it enters the mold within a definite time. Castings are permitted to remain in the mold for

Certain castings required to meet severe service requirements are given a close X-ray inspection to discover hidden defects

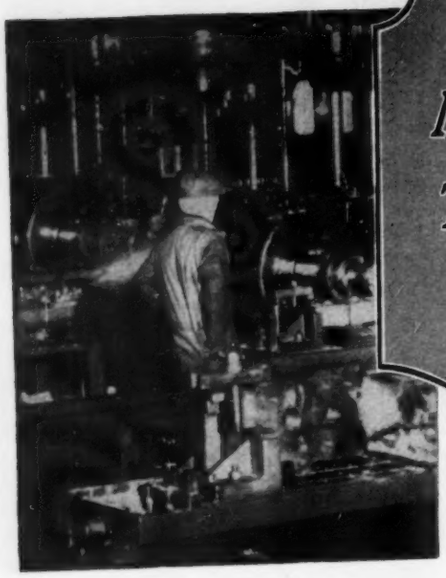
varying predetermined periods before being stripped. They are taken to the cleaning room where risers are removed and any necessary filing or grinding is performed. They then are sandblasted and conveyed to the inspection department where they are subjected to minute visual inspection, measured to jigs and fixtures and in many cases subjected to hydraulic test ranging upward to 300 pounds per square inch for some types of airplane and automobile castings.

Those castings which require heat treatment are next removed to the heat treating department where a normalizing treatment at 350 degrees for two and one-half hours suffices for many of the parts. Others are given a heat treatment of 900 degrees for periods ranging up to 18 hours, removed from the oven and water quenched, and a few special castings are given a steel ageing treatment ranging from two to 45 hours under steam at 75 pounds pressure.

Complete chemical and physical laboratories are supplemented by a modern X-ray inspection department. Castings intended for severe service such as cylinders for airplane motors receive close X-ray inspection. Test bars from every heat give the customer an accurate measure of the strength of the castings he receives.

Imports of steel products into Java and Madura in 1928 were 190,073 tons, compared with 165,225 tons in 1927. Increased use of oil pipe brought about this increase, a long pipeline taking most of the tonnage.

In the trimming room, saws, pneumatic cutters, grinding wheels and mechanical files and trimmers prepare the castings for final inspection



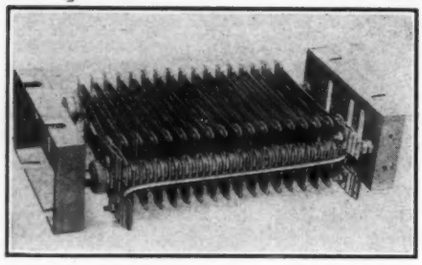
New Machine Tools and Shop Equipment

"Without tools man is nothing, with tools he is all."—Carlyle

Field Discharge Switch for Magnetic Chucks

No. 170

Taft-Peirce Mfg. Co., Woonsocket, R. I., is placing on the market a field discharge switch for use with high-power magnetic chucks. The switch has been designed to dissipate the high voltage surge induced in the windings of an unprotected circuit when the operator of a magnetic chuck unit throws on the switch, thereby preventing the puncture of coil insulation through this cause. When an operator opens the switch of a large magnetic chuck the voltage surge in the coils will build up instantaneously to several times the normal operating voltage. This surge is of but a moment's duration, but when repeated continually over several months' time trouble is apt to be encountered. Such surge is said to be limited to a harmless intensity and dissipated through resistance coils by use of the field discharge switch. The switch is intended primarily for use on magnetic chucks of the higher ratings.



No. 171—New resistor unit

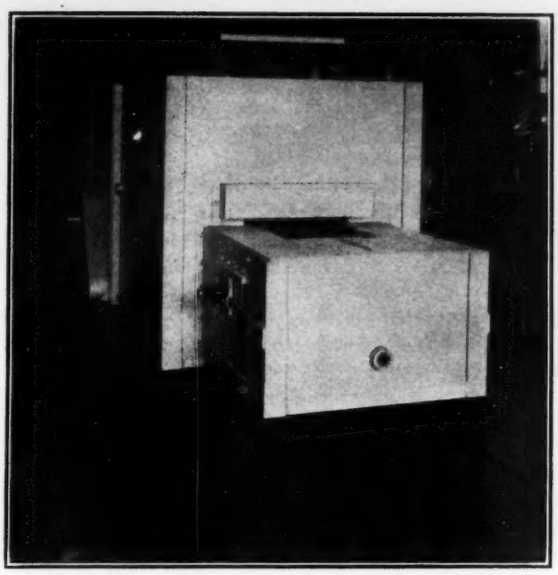
Unbreakable Resistors Compactly Designed

No. 171

Cutler-Hammer Inc., Twelfth and St. Paul avenues, Milwaukee, has designed a new series of resistor units with continuous resistance elements. These elements are made of rust-proof noncorrodible alloy and are ribbed proportionally on the sides as well as on the turning edges, as shown in the accompanying illustration. A new method of supporting the strips combined with the ribbing permits free expansion and contraction. All the resistors, regardless of ampere rating, are of equal size, the thickness of the resistance strip being the only variable. The unit is adaptable to any standardization plan for resistor

Iron Trade Review's Calendar of New Equipment

Item	Comment	Builder	No.	Date Described	Page
Chamfering machine	Equipped for chamfering wide variety of gear teeth	City Machine & Tool Works	149	July 18	144
Grinders	Bench and pedestal types; enclosed	Hill-Curtis Co.	150	July 18	145
Gage set	Radius gages; 16, varying from 1/32 to 17/64-inch	Lufkin Rule Co.	151	July 18	145
Drill	Multiple-spindle medium-size machine; hydraulic feed	National Automatic Tool Co.	152	July 18	145
Electrode holder	Clamp-type; holds electrode wire in any position	General Electric Co.	153	July 18	145
Testing machines	Complete line of metal testing units	Losenhausenwerk, Germany	154	July 25	203
Drill	High-speed sensitive type; two speeds	High Speed Hammer Co.	155	July 25	203
Saw	High-speed type for cutting off nonferrous shapes	Hunter Saw & Machine Co.	156	July 25	204
Sand mixer	Moving and fixed blades in circular stationary pan	C. & B. Smith, England	157	July 25	204
Drill	Multiple-spindle type; six spindles on 7½-inch centers	Kent Machine Co.	158	July 25	204
Presses	Toggle presses for punching flanges and webs	Beatty Machine & Mfg. Co.	159	July 25	205
Electrode	For welding mild steel and cast iron repair work	Lincoln Electric Co.	160	Aug. 1	265
Blue-printing machine	Exposes, develops, washes and dries prints continuously	C. F. Pease Co.	161	Aug. 1	265
Trucks	Three-wheel trucks for carrying acetylene generators	Oxweld Acetylene Co.	162	Aug. 1	265
Milling machine	Cam feed to head; suitable for high production	Kent-Owens Machine Co.	163	Aug. 1	266
Tapping machine	Friction-driven, geared and semiautomatic	Rickert-Shafer Co.	164	Aug. 1	266
Woodworking machine	Improvements on former type; portable, increased power	De Walt Products Corp.	165	Aug. 1	266
Water coolers	Electric; control of temperature provided	Frigidaire Corp.	166	Aug. 1	267
Switch Mechanism	Drum switch operating mechanism for use in crane cabs	General Electric Co.	167	Aug. 8	331
Cleaner	Air motor driving rotating wire brush; portable	Paasche Airbrush Co.	168	Aug. 8	331
Grinder	Electric bench type; 6-inch wheels; ball bearings	Millers Falls Co.	169	Aug. 8	331
Switch	Field discharge switch for use with magnetic chucks	Taft-Peirce Mfg. Co.	170	Aug. 15	398
Resistor	For use in resistance banks; rustproof and noncorrodible	Cutler-Hammer Inc.	171	Aug. 15	398
Welding machines	Power-driven vertical welder and double-roller seam welder	Thomson Electric Welding Co.	172	Aug. 15	399
Furnace	Continuous heat treating mesh-belt conveyor type	General Electric Co.	173	Aug. 15	399



No. 173—Mesh-belt conveyor type electric furnace for continuous heat treating of small parts

banks and is said to be completely vibration-proof and unbreakable.

Announces Two Electric Welding Machines

No. 172

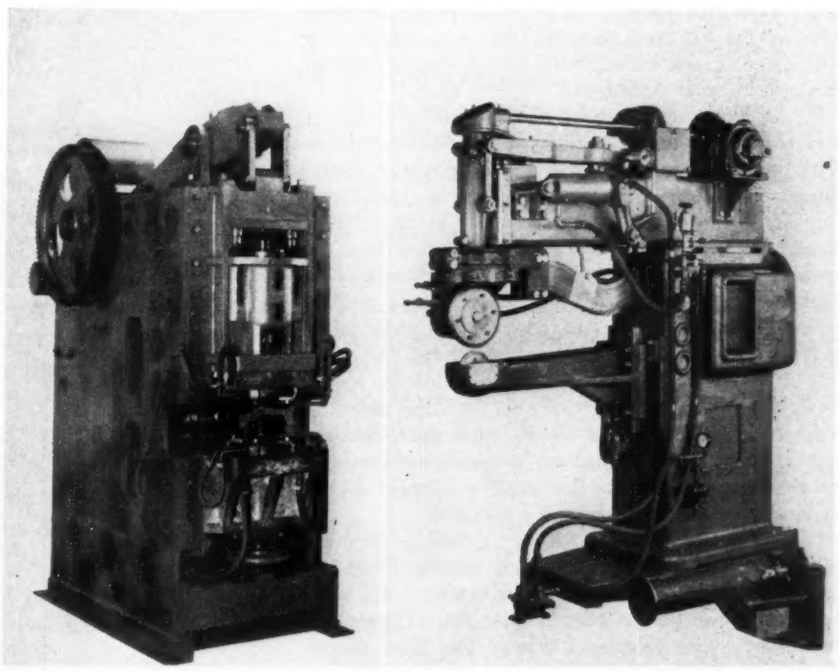
Thomson Electric Welding Co., Lynn, Mass., recently has developed two new electric welding machines. One, shown at the right in the accompanying illustration, is a heavy-duty double-roller seam welder having a throat depth of 30 inches and supplied with a transformer rated at 100, 150 or 175 kilovolt-amperes. Drive of the upper roller electrode is through motor, gear reduction unit and gears with provision for altering the speed or rotation of the upper roller through change gears. Pressure on the work or electrodes is obtained through an air cylinder operating through an adjustable pressure spring. Control of the welding current is through the pressure cylinder which is controlled itself by a foot valve. The upper roller is of the offset or open-side type, permitting quick replacement. It is made of forged copper and mounted on a large hub on the shaft. The shaft as well as the shaft bearing housing is water cooled, the bearing housing being of such a construction that housing and mounting may be rotated through 90 degrees without disconnecting or breaking any electrical joint. This rotating feature permits the welder to be used for either longitudinal or circumferential seam welds by interchanging the lower horns.

The second machine, shown at the left in the accompanying illustration, is known as a heavy-duty power-driven vertical welder. Practically all frame parts of this machine, with the exception of the lower slide, upper terminal block and upper slide, are made of heavy plate and bar stock fabricated by electric arc welding. The welder is equipped with a 350 kilovolt-ampere transformer. The operation of the machine follows the conventional methods of operating automatic spot welders. Movement of the upper slide is obtained through a heavy rocking arm or lever actuated by a cam. The camshaft is driven by a 4½-horsepower four-speed motor having push-button control. The motor, in turn, through a reduction gear, revolves a large cam with a removable insert, the insert furnishing the final pressure on the weld. A dual pressure arrangement has been built into the machine, consisting of three springs, two light springs set into the upper slide head with a heavy spring between them. When in operation the machine is adjusted so that the light springs apply pressure at the time the current is turned on and the heavy spring engages in the form of a positive bump or blow as the weld is finished. This dual pressure system is said to permit lower welding currents than are possible with one heavy spring. The lower knee of the welder is adjustable vertically for die wear and work of different thicknesses. Standard speeds which may be secured from the motor are 10, 15, 20 and 30 revolutions per minute. The welder is designed to permit handling a wide variety of work such as light fabricated joists and similar structural shapes as well as for multiple projection welding on medium or heavy stampings and forgings.

Electric Furnace Treats Small Parts

No. 173

General Electric Co., Schenectady, N. Y., has placed on the market a new electric furnace for heat treating small parts. It is of the mesh-belt conveyor type, with automatic feed and discharge. As shown in the accompanying illustration, the furnace is of rectangular form, about 8 feet wide and 4½ feet high, overall. A small heat-insulated housing is provided for the feed end of the belt to prevent unnecessary losses. Moving parts and terminals outside the fur-



No. 172 (Left)—Heavy-duty power-driven vertical welder. (Right)—Double-roller seam welder for longitudinal or circumferential seam welds

nace are protected by safety guards. The principal feature of the furnace is the mesh-belt conveyor, made of heat resisting alloy. The driving mechanism is designed so that slack is taken up automatically when the belt is hot. The mesh belt is carried over two drums of the heat resisting alloy, one of which is driven by a motor through a suitable gear reduction and speed transmission. The furnace can be adjusted for various speeds and temperatures, and an adjustable opening in the feed end accommodates work of different dimensions. After heat treating the work is discharged into a chute which may carry it to a box, quenching bath or some other subsequent process. The furnace will handle up to 300 pounds per hour, in shapes up to 16 by 2½ inches overall. Resistors are removable through the sides or top as required.

Sintering Raises Blast Furnace Output

(*Concluded from Page* 394)

Similarly, if there is too much carbon in the sinter material the mass melts and the resulting sinter is hard and dense and resembles mill cinder. It also tends to stick in the pans. The amount of carbon necessary in the sinter mixture varies with the materials under treatment. When sintering iron ore, pyrites, and flue dust, about 7 per cent carbon is required. A small amount of anthracite or coke breeze is thrown on top of the pan prior to ignition. This insures good ignition and reduces the amount of fines made to a minimum.

The coke breeze used is the screenings from coke ovens, and the analysis is similar to that of ordinary coke, only that the moisture and ash content are usually a little higher.

All iron ores, whether hematites or magnetites, make good sinter and present no difficulties in sintering, provided that the iron or silica contents are not extremely high. Burned pyrites usually is more refractory than iron ores, and it requires more coke. It often contains a large percentage of sulphur, especially when it has a large portion of rough material, as the sulphur is then not properly burnt out. However, in the process of sintering, most of the sulphur is burnt out. Purple ore presents no difficulties in sintering and makes good sinter.

Flue dust is one of the most difficult materials to deal with. However, as a blast furnace makes much of this material, it has to be used, and it is cheap. Cardiff flue dust is rich in iron and carbon, and can be considered as both an ore and a fuel. The excess carbon replaces some of the coke breeze. The trouble with flue dust is that the carbon content is variable, so that the mixture may at one time show an excess of carbon, while a short time after it is deficient in carbon. The sinter mixture should never contain more than 30 per cent flue dust, as the sinter is liable to be irregular in quality.

Flue dust should never be used directly as it comes from the furnace. It has been found in practice that it sinters much better when it has been stocked out in the open and "weathered" for several months. When a blast furnace has been slipping badly, large lumps of coke, up to 4-inch cube, often are found in the flue dust. It is impossible to separate them out, so the flue dust is put into the sinter mixture with them in. It has been found that these lumps of coke give no trouble at all, and do not cause any overheating. They simply pass through the sinter process without being burnt.

Roll scale sinters easily, and, owing to its high iron content, it considerably enriches the resulting sinter. The amount of return sinter made is about 15 to 20 per cent. This material is easy to sinter, and its presence in the sinter mixture is advantageous, as it tends to keep it porous.

Four Hundred Steel Mill Workers Toil in White Clothing

NOW, fancy the steel mill crew coming to work "all tricked out" in white duck pants and white shirts. A jest? Nothing of the sort—it's actually happening. A by-product of the jazz age? No, neither! A serious-minded effort to promote cleanliness and safety. The experiment is being tried at the Ashland plant of the American Rolling Mill Co. It originated with and is being carried through by the workmen.

In the illustration we see a white-clad member of a prize-winning safety team at the Ashland plant. With white duck pants and white shirt he would appear the same at his work. How he would appear after the day's work is another matter, but a great idea will carry men along past the stage of apparent absurdity to the peak of practicability. Inspired by the influence of clean, neat and orderly surroundings the crew on one of the cold mills, under Foreman Elmer Heinseth, reported for work July 22 in immaculate attire. The following morning almost the entire personnel of the finishing department on the 8 to 4 o'clock turn, came dressed in the latest fashion. Four hundred workmen at the plant now are in style. The movement is being watched with considerable interest.

This is indicative of what is happening in modern steel mills, with the trend strongly toward greater cleanliness, sanitation and safety. In some manufacturing plants the experiment of painting machinery white has been tried. The Ford Motor Co. put heavy enamel on skip hoist engines and on other equipment, as an incentive to those instructed to keep equipment clean.

Milwaukee Labor Steady

Employment in Milwaukee remains steady, the pronounced gain over last year at midsummer being well maintained. The August report shows that at the beginning of the month 43,761 were at work in factories regularly reporting and accepted as the basis of all industries in the Milwaukee area. This is 6500 more people at work than a year ago. The July report showed 43,814 at work, the decline to August being only 53, an almost negligible decrease. The report again comments that the metal trades are still seeking skilled labor.

Garman Tool & Die Co., Detroit, has increased its capital from $50,000 to $200,000.

Editorials

Bank Rate Advance Constructive

MANY complex implications cling to the dramatic and unexpected action of the federal reserve board in authorizing an advance of the New York federal reserve bank rate one whole point to 6 per cent. Through the maze of interpretation, however, the most plausible explanation is that the board's real intent was to loosen credit for fall trade and for crop movements with one hand and to tighten it for stock market speculation with the other. While the rediscount rate was raised the buying rate on bankers' acceptances was lowered, indicating a reserve policy of increasing holdings of bills and investments and thus releasing more credit for business use.

The increase in the rediscount rate represents a change of front on the part of the reserve system authorities. In recent months they have been seeking to check the enormous flow of banking credit into the stock market by other means than a higher rediscount rate. Credit was tightened by the system's divesting itself of its bill holdings and investments. This threw a larger burden upon banks and made credit more scarce. For a time the stock market was hesitant, but during the last two months it has been forging ahead. The stimulant has not been easy money, but active business and good industrial earnings. These considerations have overweighed call money rates ranging from 8 per cent to 15 per cent.

Meanwhile, brokers' loans have expanded to more than $6,000,000,000 and money conditions have become tight in Europe as well as in this country. The British situation is particularly acute, with the large drain upon gold reserves of the Bank of England. This is going chiefly to France where the financial situation is exceptionally good. The belief prevails that the reserve board's latest move was taken with an eye for relief of the British situation. Whatever the international factors involved it would appear from present indications that the advance of the New York rate is not a threat to domestic business, but the contrary. This action, together with the lower rate on acceptances, is the prescription of the federal reserve board for averting a fever of tight money for business this fall.

The ultimate effect on the stock market of this drastic step remains to be seen. Although most stocks suffered noticeably following the rediscount rate revision, they were quick to recover any serious setbacks.

Steel's Concentration Not Inimical

ON ANOTHER page of this issue one may read that two-thirds of the country's facilities for making steel is at the command of five producers, while four-fifths is in the control of the first ten producers.

The first reaction to this statement, based upon a painstaking analysis of the industry today, may be that there is an unduly heavy concentration of capacity in the steel industry. A few years ago the mere fact of concentration would have been prima facie evidence of monopoly, of evil purpose. Now, fortunately, the test is not size but service. Is the country getting the steel it requires, and at reasonable prices?

The performance of the industry in the first seven months of this year should be a convincing answer. Never have the demands upon the industry been so great; yet, though deliveries were somewhat deferred, it is not known that any consumer was seriously handicapped for lack of steel.

Meanwhile, prices of iron and steel generally have remained stable. Many grades of pig iron show no appreciable change from the beginning of the year, and in finished steel a dollar or two blankets most advances. Compare steel bars and plates at Pittsburgh at 1.95c today with the market of 2.90c on bars and 3.25c on plates when the armistice was signed. No industry was fleeter than steel in retreating from the influence of the war.

In all industry the trend is toward concentration of production. While the observations for steel relate to capacity, it may be assumed that they likewise mirror production. The two leading makers of steel—the United States Steel Corp. and Bethlehem Steel Co.—account for 53 per cent of the nation's steel ingot capacity. Ford and Chevrolet—and Chevrolet is only one unit of an aggregate which compares with United States Steel—made 55 per cent of the first half year's automobiles.

General Motors, Ford, Chrysler, Willys-Overland and Hudson-Essex, the five leading automobile interests, embrace well over 80 per cent of all

automobile capacity. The carbuilding industry is more difficult to compare, but five names would indicate substantially complete production. In the farm implement and tractor industry, five names cover most of the ground. In woolens, canned and packaged food products, bus transportation, petroleum production—in almost any important division of business and industry national in character—five producers denote a commanding proportion of the total. Indeed, steel would be the exception were it further diffused.

Pig Iron Record an Achievement

PRODUCTION totals for both pig iron and steel ingots for the first seven months of 1929 are so amply in excess of any previous comparable period that new high output records may be regarded as certain.

The best pig iron year was 1923, when the blast furnaces produced 40,025,850 gross tons. To equal that, only 14,605,802 tons need be made in the remaining five months of 1929. When the furnaces averaged 119,544 tons daily in the first seven months to turn out 25,420,048 tons, it appears an easy task to average 95,463 tons in the closing five months.

The seven-month output of open-hearth and bessemer steel ingots of 33,805,267 tons is only 16,059,918 tons short of all 1928, which holds the record. The industry averaged 186,769 tons daily from Jan. 1 to July 31, but it can ease off to 123,539 tons daily from Aug. 1 to Dec. 31. There is nothing now to indicate a depression of more than 34 per cent the remainder of the year.

Records have come easily in steel. Since the armistice in 1918, new output peaks have been scaled in 1920, 1923, 1925, 1926, 1928 and now certainly in 1929. But pig iron is chary of its laurels. The high registered in 1916 stood until 1923, and now 1929 promises only the second record since 1918, compared with six in steel.

New Opportunities with New Steels

AS THE material itself or the medium for manufacture, steel is the basis of present-day civilization, but the producers of steel unfortunately lack a close, continuing contact with the ultimate consumer. In the nature of things they stand in the shadow of the fabricator or manufacturer; their role as the maker of the raw material is obscured.

In the matter of trade promotion this is a handicap. To be sure, the steel industry benefits rather directly when automobile manufacturers—their largest customers—restyle or so improve their models that the ultimate consumer finds it irresistible or imperative to replace. But a great tonnage of steel each year flows into channels difficult to affect. Once a skyscraper is erected or a bridge flung across a river it is there to stay. The cycle of steel forged into an automobile crankshaft is completed much more swiftly than that of a structural member.

The course of trade promotion for steel is thereby pretty well defined, if not to an extent restricted. For the steel producer proper, new uses would seem to offer the greatest opportunities. To an extent yet difficult to appraise, the new steels which have been making the westward crossing of the Atlantic may influence trade promotion. The substitution of the stainless steels for exposed bright work, as in automobiles and buildings, typifies one channel. The corrosion-resisting properties of some of the new steels may open another door.

Merely to cite one example, take steel railroad ties. Their production is not at all commensurate with the tremendous railroad mileage of the country. In fact, their production is declining. In 1923 output was 20,167 tons, in 1924 it was 14,968 tons, in 1925, 1926 and 1927 it was just above 13,000, while in 1928 it dropped to 12,266 tons. With approximately 250,000 miles of railroad track in the United States, the market is waiting, and it would seem that with the new steels a new start could be made. In many other consumptive lines doubtless there are as great opportunities.

Now Comes Power Farming

RESEARCHES of farm equipment engineers are tending constantly to develop advanced machine methods for agriculture. The field is by no means exhausted, and much further progress in reducing costs on the farm by development of labor saving machinery is assured.

Power farming, which still is in its infancy, promises to achieve for agriculture something of the accomplishments of machine farming in the past half century. The problem of providing an adequate food supply in the face of a diminishing supply of farm labor will be solved by the increasing and more varied application of power to farm work, it was pointed out recently by an agricultural engineer of a western university faculty, who also predicted that the use of power in the future will multiply more than six times the present producing capacity of the farm worker. The significance of such development in agricultural methods and equipment to metalworking industries serving the implement manufacturers is not even clearly comprehensible at this time.

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E. L. SHANER, Editor. — *J. D. PEASE, Advertising Director.* — *F. F. LIGHT, Circulation Manager.*

Iron Trade Review's Semiannual Survey of Concrete Reinforcing Steel Tonnage. Page 390

A COMPACT statement of present steel ingot and pig iron producing capacities of the 35 leading interests in the United States is contained in the article on page 386, to which readers probably will want to refer many times. The figures were obtained directly from the companies, and represent the latest authoritative information. In view of expansions and regroupings in the past year, a summary of this kind is timely, and clarifying. The 35 producers as listed account for 99 per cent of the total tonnage of industry. Five interests make two-thirds of the iron and steel, and ten make four-fifths.

The Readers' Page

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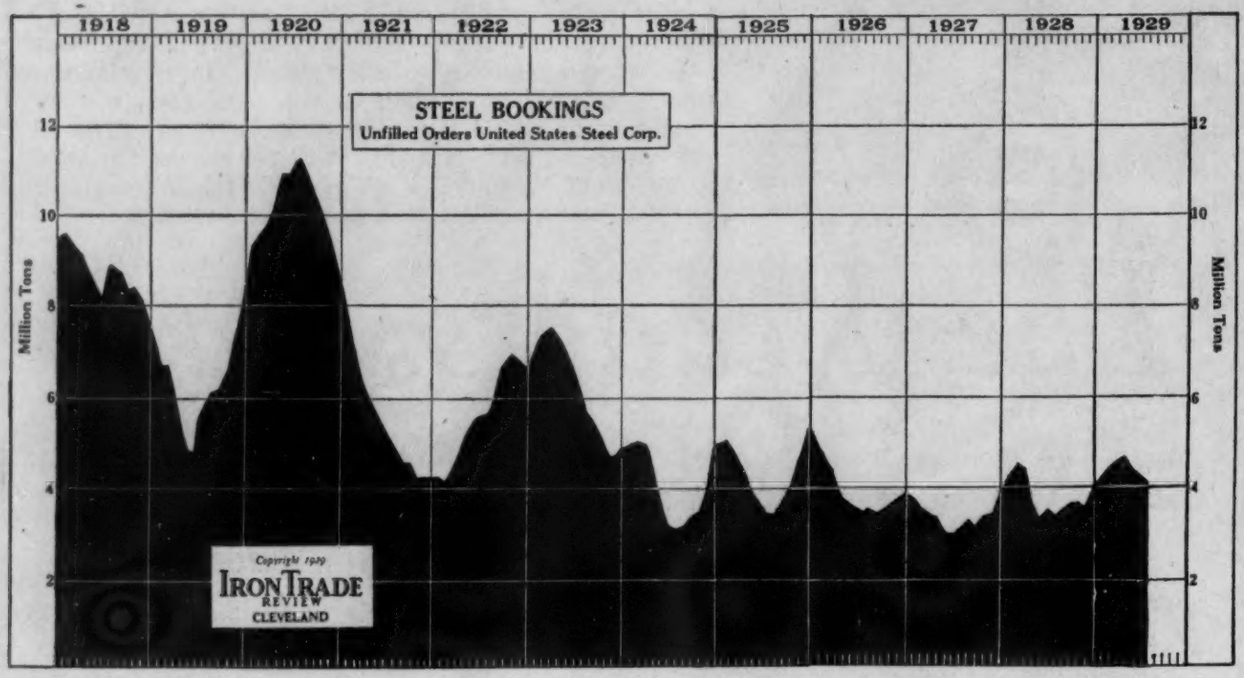
The Business Trend



Corporation Orders Reflect Business Above 1928

By JOHN W. HILL, Financial Editor

UNFILLED orders of the United States Steel Corp. reached their highest point this year in April with a total of 4,427,763 tons. From that level there has been a decline of 339,586 tons to the total of 4,088,177 at the close of July. From the peak for orders in the first half of 1928 reached in February to the end of July in that year there was a decline of 827,262 tons.

NOT only has the recession in bookings from the top been less than half of that in 1928 to the end of July, but aggregate bookings stand over 500,000 tons above the total of 12 months ago. The decline in orders last month amounted to 168,733 tons. This was greater than the decline in July, 1928, of 66,000 tons.

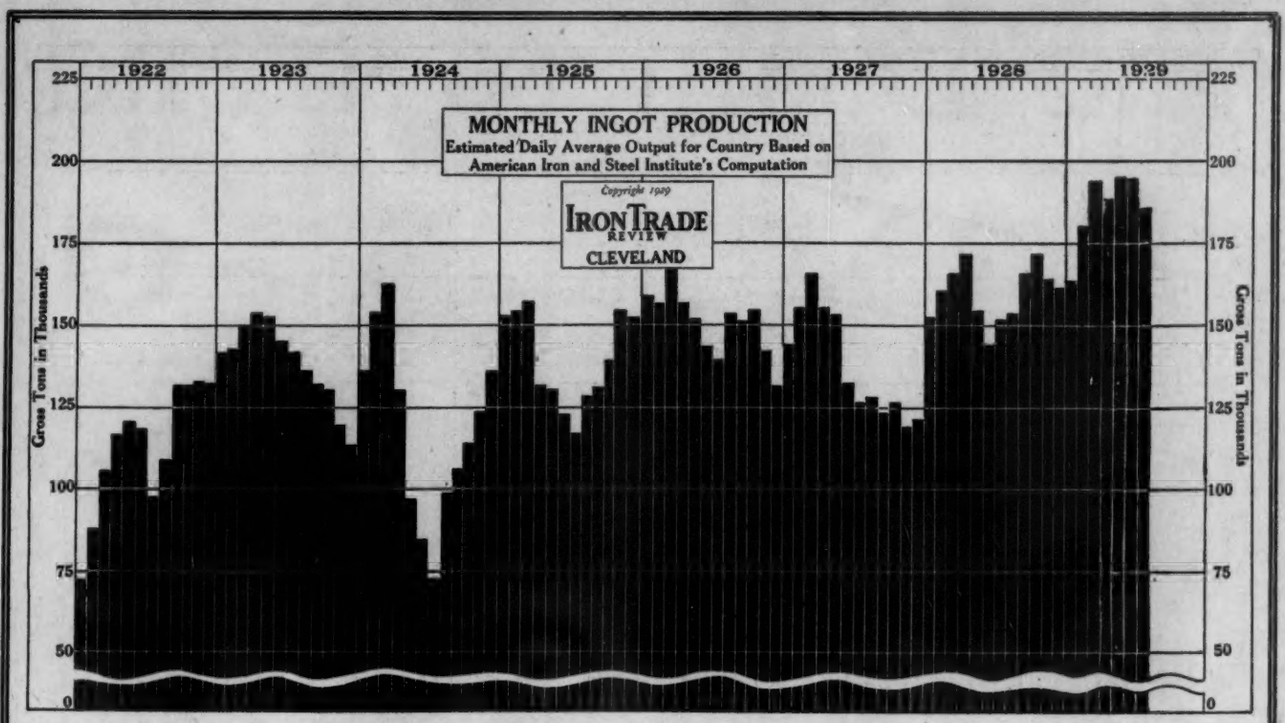
THE falling off in bookings during the month was not unexpected in view of the large production that prevailed. With operations of the Corporation close to capacity for the greater portion of the month, while some seasonal decline in new business was in progress, it was inevitable that the backlog should be reduced. The remarkable part of the picture is that bookings continue so high in view of the wholly record-breaking production since the start of the year.

JULY brought only a small drop in output of either pig iron or steel ingots. Actually pig iron production was only 3 per cent under May peak, while ingot output was less than 5 per cent below its peak, also reached in May.

FROM the record of the iron and steel trade it is plain that no serious recession in business has occurred. While the prospect for the remainder of the year remains to be defined, there are no present indications pointing to a general downward turn. In fact, evidence has already appeared that there will be the usual quickening of autumn trade activities.

THE financial world suffered a sharp surprise last week with the advance of the New York Federal Reserve bank rediscount rate to 6 per cent. At the same time, however, the bank's rate for banker's acceptances was lowered, indicating the reserve's decision to buy more bills and thus release more credit for commerce. Summed up, the reserve board is seeking to ease credit and lower rates for business and crops, and at the same time check the abnormal flow of credit into the stock market. The outcome of such a policy, if it works, would be healthy.

The Business Trend

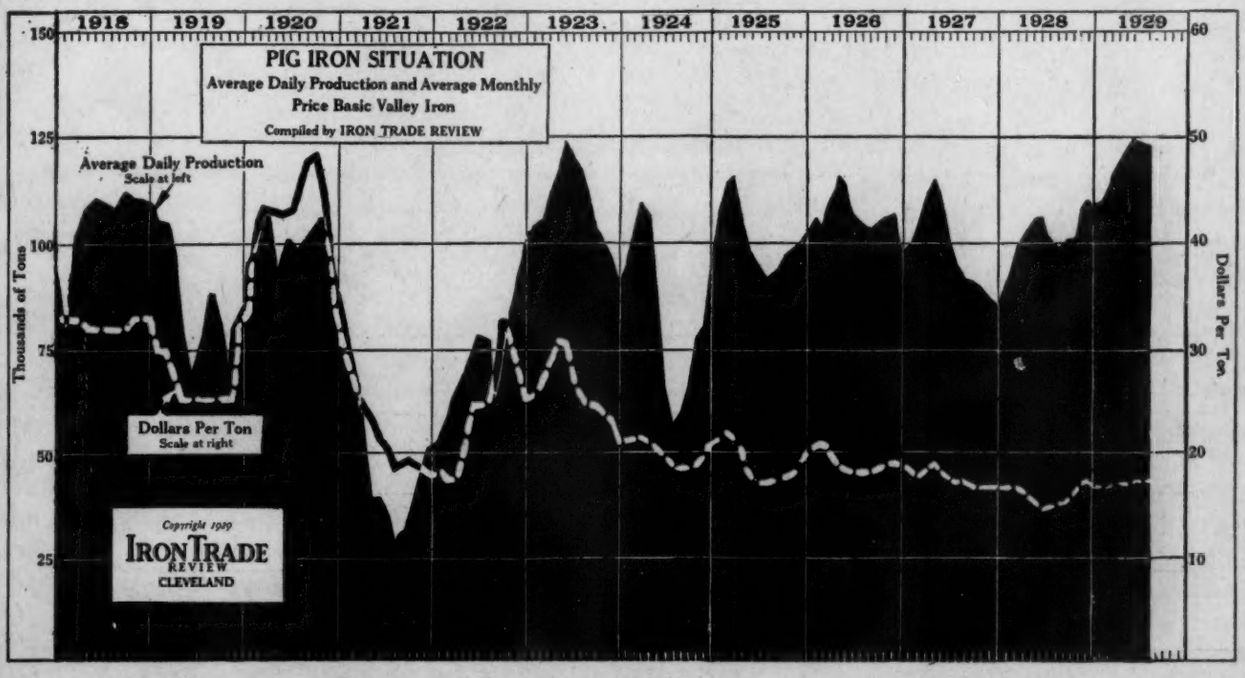


Steel Ingot Production

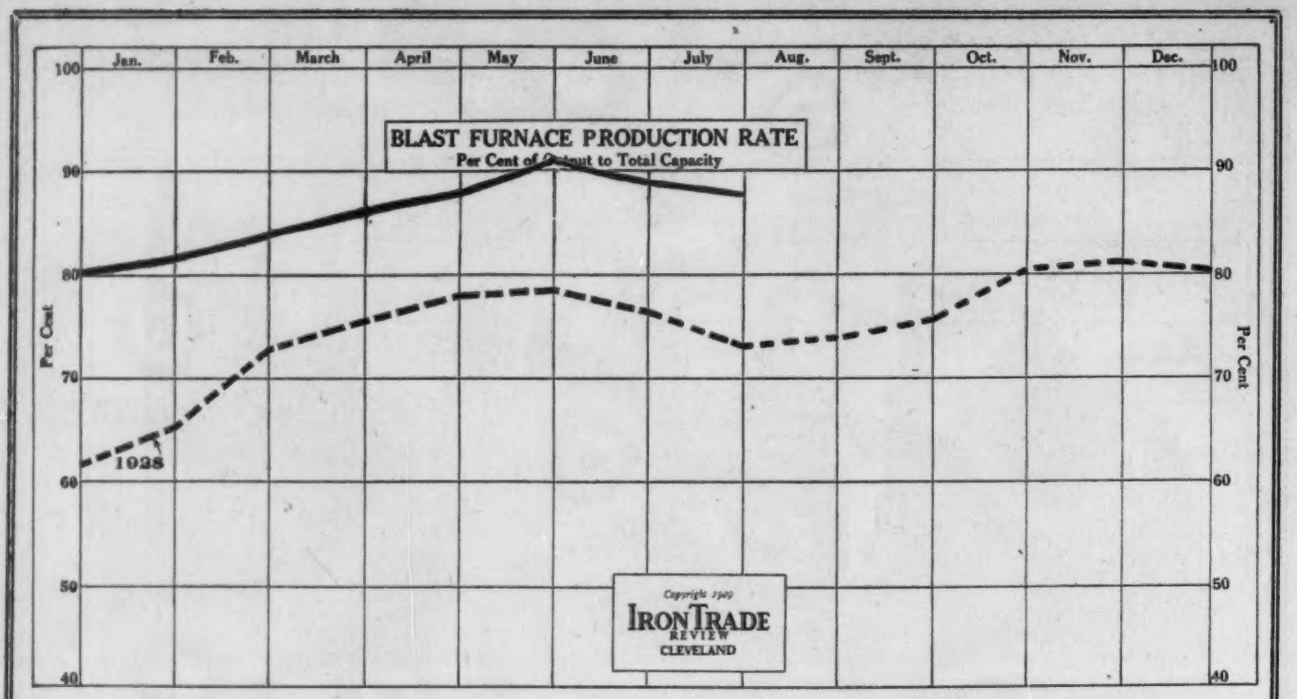
PRODUCTION of steel ingots last month was the largest of any July of which there is a record. Daily average output by all companies during the month was 186,080 tons compared with 195,255 tons in June and 152,400 tons in July, 1928. For the first seven months of the year open-hearth ingot production is reported at 27,963,403 tons while bessemer output of reporting companies was 4,255,956 tons. Total ingot production for the period of 33,805,267 tons compared with 28,603,671 tons a year ago.

Pig Iron Situation

THE daily average rate of pig iron production in July was 122,016 tons compared with 123,837 tons in June and 99,120 tons in July, 1928. The figure for the month was the highest on record for any July. The previous highest July daily average was in 1923 with 118,860 tons. The July rate this year was only 3 per cent below the peak for all time touched in the preceding May. Output for the first seven months of the year was 25,420,048 tons compared with 21,583,-174 tons the same period of 1928.



The Business Trend

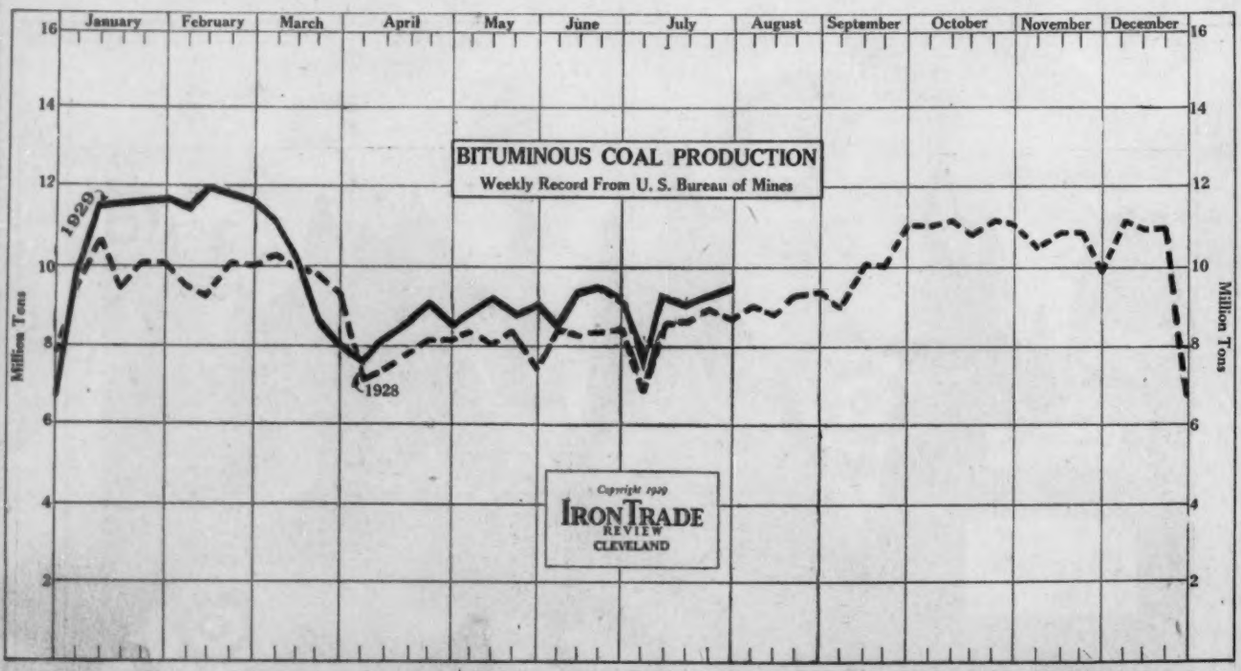


Blast Furnace Production Rate

FOR the first time since Nov. 30, 1928 the number of active blast furnaces declined at the close of July. The total number of furnaces in blast at the end of the month was 217, a recession of 3 from the number of 220 in blast at the end of June. Production of pig iron during the month represented 88.4 per cent of the total capacity of the country's 325 furnaces available for use. This compared with 89.8 per cent of capacity of June, 73.2 per cent in July, 1928. All capacity is estimated at 50,367,665 tons.

Bituminous Coal Production

PRODUCTION of soft coal in the United States scored a substantial increase during the month of July. Preliminary estimates indicate a total output of 40,619,000 tons compared with 38,073,000 tons in June and 36,276,000 tons in July, 1928. The daily average output for July was 1,562,000 tons compared with 1,451,000 tons one year ago. Weekly production has held at a relatively high level, with the output for the week ended July 27 standing at 9,481,000 tons. Good industrial activity is reflected.



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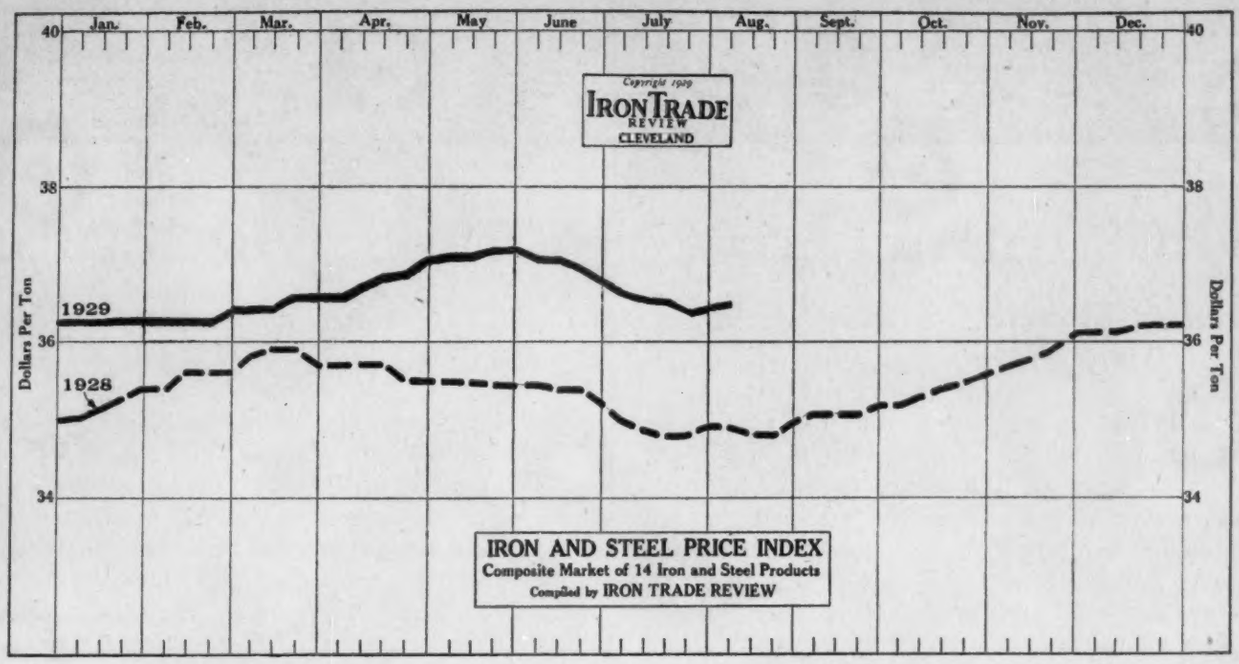
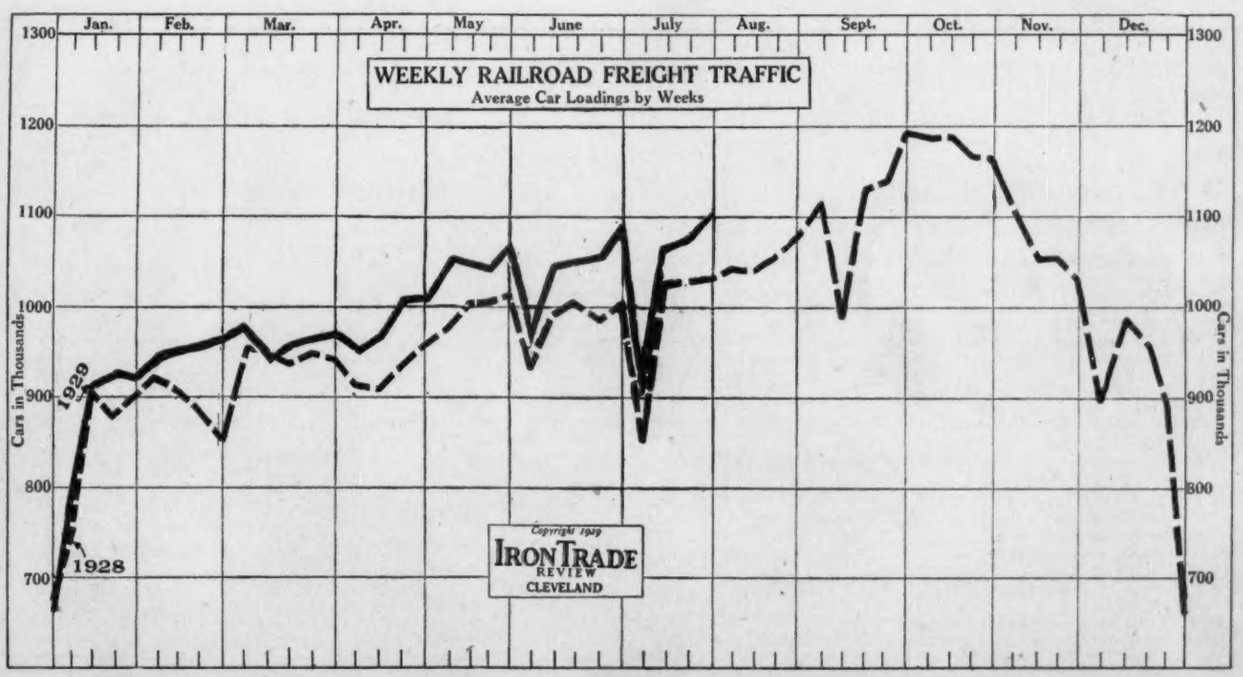


Steel Price Index

FURTHER weakness has appeared in the average price level of iron and steel products. IRON TRADE REVIEW'S composite market average for the first week of August stood at $36.60. This was a decline of 8c from the preceding week due chiefly to weakness in sheet prices. The average is now at the lowest point since the first week of April, but it continues substantially higher than one year ago. The price average in August, 1928 was $34.96 a ton. The present level is 4 per cent over 1928.

Weekly Freight Traffic

LOADINGS of revenue freight for the week ended July 27 totaled 1,101,061 cars. This was the first time that loadings had exceeded the figure of 1,100,000 cars at this season of the year. The increase over the corresponding week of 1926, the previous high record for this period of the year, was 5064 cars. Compared with the corresponding week one year ago there was an increase of 66,735 cars, while the gain over the preceding week this year was 22,366 cars. Increases were reported in all loadings.



Midsummer Recession Is Moderate

Leading Interest Operating at 99 to 100 Per Cent—Unfilled Orders Decline, Reflecting Heavy Shipments—Pig Iron Demand Holds Up

GENERAL conditions in the iron and steel markets remain exceptionally favorable for this time of the year, though there is further slowing down in midsummer buying, and production is off a little on some of the lighter lines of finished steel. Mills are operating at an average above 90 per cent for the country mainly on the momentum gained through heavy orders previously placed, and at this time there is comparatively little quarterly buying under way. Production is holding up especially well on the heavier steel products. The general list of prices exhibits firmness.

Beehive Furnace Coke Prices Easier

Pig iron shipments continue considerably above the average for this season of the year. Melters in the Middle West are taking larger tonnages than in July, while shipments from Lake Erie furnaces are about 15 per cent off from those of last month. Further increase in production of beehive furnace coke has resulted in heavier offerings and the market is down 10 cents to $2.75.

Unfilled orders of the United States Steel Corp. declined 168,733 tons during July to a total of 4,088,177 tons as of July 31, further evidence of the high rate of shipments that has characterized the summer months. This was the third consecutive decline, that for May being 123,596 tons, and for June 47,257 tons. The total unfilled tonnage July 31 was 517,250 tons more than on the same date last year.

July Daily Ingot Average Below June

Production of open-hearth and bessemer steel ingots was at a daily average of 186,769 tons, a high record for the month of July, but 8486 tons below the daily average of June. The July figure was only 8533 tons, or 4.2 per cent, below the all-time daily average record rate made in May. Total output in July was 4,838,083 tons, compared with 3,805,598 tons in July, 1928. The first seven months output this year, amounting to 33,805,-267 tons, is a record for the period, exceeding the next best figure, the comparable period of 1928, by 5,201,596 tons. Steelworks were operat-

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Aug. 14, 1929	July 1929	May 1929	August 1928
PIG IRON				
Bessemer, del. Pittsburgh	$20.76	20.76	20.56	18.76
Basic, valley	18.50	18.50	18.30	16.00
Basic, eastern, del. eastern Pa.	19.85	19.85	20.50	19.00
No. 2 foundry, del. Pittsburgh	19.76	19.76	20.16	18.26
No. 2 foundry, Chicago	20.00	20.00	20.00	17.60
*Southern No. 2, Birmingham	14.00	14.40	15.50	15.65
**No. 2X, Virginia furnace	20.00	20.00	20.75	20.50
**No. 2X, Eastern del. Philadelphia	22.26	22.76	22.76	20.76
Malleable, valley	19.00	19.00	18.80	17.00
Malleable, Chicago	20.00	20.00	20.00	17.60
Lake Superior charcoal, del. Chicago	27.04	27.04	27.04	27.04
†Gray forge, del. Pittsburgh	19.13	19.13	19.26	18.01
Ferromanganese, del. Pittsburgh	109.79	109.79	109.79	109.79

*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.
†Now based on Pitts. dist. fur. price; formerly on Valley base.

COKE				
Connellsville furnace, ovens	2.75	2.75	2.75	2.75
Connellsville, foundry, ovens	3.75	3.75	3.75	3.75
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	35.00	35.00	36.00	33.00
Sheet bars, open-hearth, Pittsburgh	35.00	35.00	36.00	32.20
Billets, open-hearth, Pittsburgh	35.00	35.00	36.00	32.00
Wire rods, Pittsburgh	42.00	42.00	42.00	42.00

	Aug. 14, 1929	July 1929	May 1929	August 1928
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.95	1.95	1.95	1.85
Steel bars, Chicago	2.05	2.05	2.05	2.00
Steel bars, Philadelphia	2.27	2.27	2.27	2.17
Iron bars, Chicago	2.05	2.05	2.05	2.00
Shapes, Pittsburgh	1.95	1.95	1.95	1.85
Shapes, Philadelphia	2.06	2.06	2.06	2.01
Shapes, Chicago	2.05	2.05	2.05	2.00
Tank plates, Pittsburgh	1.95	1.95	1.95	1.85
Tank plates, Philadelphia	2.15	2.15	2.15	2.10
Tank plates, Chicago	2.05	2.05	2.05	2.00
Sheets, black, No. 24, Pittsburgh	2.85	2.85	2.95	2.65
*Sheets, blue anl., No. 18, Pittsburgh	2.35	2.35	2.20	2.00
Sheets, gal., No. 24, Pittsburgh	3.50	3.60	3.70	3.50
Sheets, black, No. 24, Chicago	3.10	3.10	3.10	2.80
*Sheets, blue anl., No. 18, Chicago	2.50	2.50	2.35	2.15
Sheets, galvanized, No. 24, Chicago	3.75	3.85	3.85	3.65
**Plain wire, Pittsburgh	2.50	2.50	2.50	2.40
**Wire nails, Pittsburgh	2.55	2.65	2.65	2.55
Tin plate, per base box, Pittsburgh	5.35	5.35	5.35	5.25

*Comparisons for May, 1929 and August, 1928, are with old blue annealed base, No. 10. **To large jobbers.

SCRAP				
Heavy melting steel, Pittsburgh	19.00	18.45	17.85	15.00
Heavy melting steel, eastern Pa.	16.50	16.50	16.25	13.75
Heavy melting steel, Chicago	15.00	14.75	15.45	12.65
No. 1 wrought, eastern Pa.	16.25	16.25	16.25	14.80
No. 1 wrought, Chicago	15.00	14.85	16.40	12.40
Rails for rolling, Chicago	17.50	17.50	17.50	15.00

Current Prices for Rolled Steel Products

PRICES IN CENTS PER POUND

STEEL PLATES

Pittsburgh, base	1.95c
Philadelphia, del.	2.15c to 2.25c
New York, del.	2.225c to 2.325c
Boston, del.	2.265c to 2.415c
Chicago, base	2.05c to 2.15c
Cleveland, delivered	2.14c
Lackawanna, N. Y., base	2.05c to 2.15c
Birmingham, base	2.10c
Coatesville, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
St. Louis, del.	2.27c
Detroit, del.	2.19c to 2.24c

STRUCTURAL SHAPES

Pittsburgh, base	1.90c to 1.95c
Philadelphia, del.	2.01c to 2.11c
New York, del.	2.195c to 2.245c
Boston, del.	2.265c to 2.415c
Chicago, base	2.05c to 2.15c
Cleveland, delivered	2.09c to 2.14c
Lackawanna, N. Y.	2.05c to 2.15c
Birmingham, base	2.10c
Bethlehem, Pa., base	2.00c to 2.10c
Pacific Coast, c.i.f.	2.35c
Detroit, del.	2.19c to 2.24c

BARS

SOFT STEEL

Pittsburgh, base	1.95c
Chicago, base	2.05c to 2.15c
Birmingham, base	2.10c
Lackawanna, N. Y., base	2.05c to 2.15c
Pacific Coast, c.i.f.	2.35c
Cleveland, base, local mills	1.90c to 1.95c
Cleveland, del., outside mills	1.95c
Philadelphia, del.	2.27c to 2.32c
New York, delivered	2.29c to 2.34c
Boston, delivered	2.265c to 2.415c
Detroit, del.	2.19c to 2.24c
Pittsburgh, cold finishing	2.05c
Pittsburgh, forging quality	2.15c

RAIL STEEL

Chicago Heights	1.95c
Eastern mills	1.85c to 1.95c

IRON

Chicago, base	2.05c to 2.15c
New York, delivered	2.19c to 2.24c
Philadelphia, delivered	2.17c to 2.22c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pittsburgh, billet, cut lengths	2.30c
Stock lengths from mill	2.05c
Chicago, billet	2.30c
Chicago, rail steel	1.95c to 2.05c
Chicago, rail steel, road and bridge work	1.95c to 2.05c
Philadelphia, cut lengths	2.57c to 2.62c

SHEETS

SHEET MILL BLACK, NO. 24

Pittsburgh, base	2.85c
Philadelphia, delivered	3.17c to 3.27c
Gary, Indiana Harbor	3.05c
Chicago, delivered	3.10c
Birmingham, base	3.10c
St. Louis, del.	3.27c

TIN MILL BLACK, NO. 28

Pittsburgh, base	3.00c
Gary, base	3.10c

GALVANIZED, NO. 24

Pittsburgh, base	3.50c to 3.60c
Philadelphia, delivered	3.82c to 4.02c
Gary, Indiana Harbor	3.75c to 3.80c
Chicago, delivered	3.80c to 3.85c
Birmingham, base	3.75c
St. Louis, del.	4.02c

BLUE ANNEALED
Sheets, No. 13

Pittsburgh, base	2.35c
Chicago district mills	2.45c
Chicago, delivered	2.50c
St. Louis, delivered	2.67c
Philadelphia, delivered	2.67c
Birmingham	2.50c

Plates, No. 9 and 10

Pittsburgh, base	2.10c to 2.20c
Chicago district mills	2.30c
Chicago, delivered	2.35c
Philadelphia, delivered	2.52c
St. Louis, delivered	2.52c
Birmingham	2.35c

AUTOMOMILE, NO. 20

Pittsburgh, base	4.10c
Detroit, delivered	4.39c

FURNITURE

Pittsburgh	4.20c

(Turn to the following page)

ing at 94.88 per cent of capacity in July; 99.56 per cent in June, and 80.75 per cent in July, 1928.

Steelworks operations in the Chicago district hold at 95 to 98 per cent and in the Pittsburgh territory 90 to 95. In the Youngstown district they have increased slightly to 88 per cent. Steel corporation units this week are operating at 99 to 100 per cent.

Heavy Plate Buying Maintains Backlogs

Demand for plates is relatively the heaviest of the finished steel lines, and backlogs have been little reduced, as a consequence of the steady inflow of miscellaneous tonnage. Though there is some midsummer slowing down in buying in some districts, mills are running to nearly full capacity on accumulated business. Four thousand tons of tank work was placed in the Chicago district during the week, and 7000 tons of new inquiry came out for similar purpose.

The sheet market exhibits surprising vitality for midsummer, the volume of new business being only slightly reduced from that of a month ago.

New sheet orders and specifications in the first ten days of August for the leading interest were substantially heavier than in the comparable period of July. Hot strip shows little further letdown, and cold-rolled has picked up over last month. Sellers do not look for much improvement in automotive requirements before the first of September. Steel bar demands continue unusually high for this season, though light automobile schedules this month and next are tending to hold down tonnage.

Structural awards are featured by 10,000 tons for the Pennsylvania railroad's passenger bridge over the Hackensack river, New Jersey, and 4500 tons for a secondary freight bridge; 9400 tons for a New York subway route, and 6500 tons for a Newark, N. J., bank and office building. July structural awards in metropolitan New York totaled 57,775 tons, compared with 47,299 tons in June, and 57,147 tons in July, 1928, not including bridge or subway work.

Freight Car Awards Smallest Since August, 1926

Complete returns for July show 341 freight cars were placed, the smallest number since August, 1926. The total for the first seven months this year, 63,157, however, surpasses that for the entire 12 months of 1928. Approximately 5000 freight cars now are pending in eastern and western districts.

Strength continues in the scrap market, with unabated consumption and relative scarcity. Dealers frequently are forced to pay higher than the market for tonnages to apply on contracts. Prices are working to a higher level.

A European buying movement in iron ore, with a shortage of certain grades imported into the United States, has resulted in some advances in the market. IRON TRADE REVIEW'S composite of 14 leading iron and steel products is off 8 cents this week, to $36.52, reflecting weakness in wire nails.

Composite Market Average

Based on Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets Tin Plate, Wire Nails and Black Pipe

This week (August 14, 1929)	$36.52
Last week (August 7, 1929)	36.60
One month ago (July, 1929)	36.71
Three months ago (May, 1929)	37.10
One year ago (August, 1928)	34.96
Ten years ago (August, 1919)	48.27
Fifteen years ago (August, 1914)	22.72

Current Rolled Steel Prices

PRICES IN CENTS PER POUND UNLESS OTHERWISE INDICATED

Tubular Products Quoted On Last Editorial Page—See Preceding Page For Other Products

HOOPS, BANDS, STRIPS

Hot strip, to 6-in., Pitts.	2.00c
Hot strip 6 1/4 to 24-in., Pitts.	1.90c
Hot strip, bands 6 in. and under, Chicago	2.10c to 2.30c
Do, 6 1/4 to 24 in.	2.00c to 2.10c
Cooperage stock, Pittsburgh	2.20c
Do, Chicago	2.30c
Cold rolled strip, hard coils, 16 inches and under by 0.100-inch and heavier, base Pitts., Cleve. (3 ton and over)	2.75c to 2.85c
Worcester, Mass. (3 tons and over)	2.90c to 3.00c

ALLOY STEEL

Hot Rolled
F.o.b. Mills
Alloy Quality Bar Base is 2.65c

S.A.E. Series Number	Alloy differential	Net 100 lb. bars
2000	0.25	$2.90
2100	0.55	3.20
2300	1.50	4.15
2500	2.25	4.90
3100	0.55	3.20
3200	1.35	4.00
3300	3.80	6.45
3400	3.20	5.85
4100 0.15-0.25 Mo.	0.50	3.15
4100 0.25-0.40 Mo.	0.70	3.35
4600 0.20-0.30 Mo. 1.25-1.75 Ni.	1.05	3.70
5100 0.60-0.90 Cr.	0.35	3.00
5100 0.80-1.10 Cr.	0.45	3.10
5100 Chrome Spring	0.20	2.85
6100 Bars	1.20	3.85
6100 Spring Steel	0.95	3.60
Chrome Nickel Vanadium	1.50	4.15
Carbon Vanadium	0.95	3.60
9250 (flats)	0.25	2.90
9250 (rounds squares)	0.50	3.15

Hot rolled alloy billets 4 x 4-inch and over take same price per gross ton as same specification alloys bars per net ton. Sizes under 4 x 4 to 2½ in. x 2½ in. inclusive sold on bar basis plus steel bar card extras for size. Sizes under 2½ in. x 2½ in. take bar price on net ton basis.

COLD FINISHED STEEL

Cold finished steel bars drawn or rolled, Pitts., Chi., c.l.	2.30c
Do, del. Detroit	2.575c
Shafting (turned, polished) Pittsburgh	2.30c
Shafting (turned, ground) mill (Depending on size, 1 3/16 to 7-inch)	2.65c to 3.10c
Cold finished steel bars, Cleve.	2.35c

WIRE PRODUCTS

F.o.b. Pittsburgh, Cleveland, Ironton base

(Per Pound)	Dealer trade	Large jobbers
Bright plain wire, 6 to 9 gage	2.60c	2.50c
Annealed field wire	2.75c	2.65c
Galvanized wire	3.20c	3.10c
Barbed wire, galvanized	3.30c	3.20c
(Per 100-pound keg)		
Wire nails	$2.65	$2.55
Galvanized nails	4.65	4.55
Polished staples	3.10	3.00
Galvanized staples	3.35	3.25
Cement coated nails	2.65	2.55
Manuf. wire, del. Detroit		2.635c
Wire nails, del. Detroit	$2.785 to $2.885	

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Pittsburgh-Cleveland-Ironton base on products made there; Duluth $2 higher; Worcester, Mass., Fairfield, Ala., $3 higher.

Woven wire fencing, retailers, Pittsburgh-Cleveland, net ton $65.

Anderson, Ind., $1 higher, Chicago $2 higher, Duluth, Birmingham $3 higher.

CUT NAILS, CHAIN, PILING

Cut nails, l.c.l., f.o.b. mills	2.70c to 2.75c
Cut nails, l.c.l. f.o.b. mills	2.80c to 2.85c
Chain, 1-in., proof coil, Pitts.	6.25c
Sheet piling, base, Pittsburgh	2.25c

CAST IRON WATER PIPE

Prices per net ton
Class B pipe

Six-inch and over, Birming'm	$37.00 to 38.00
Four-inch, Birmingham	41.00 to 42.00
Four-inch, Chicago	49.20 to 50.20
Six-inch to 24-inch, Chicago	45.20 to 46.20
Six-inch and over, New York	37.50 to 39.50
Four-inch, New York	40.00 to 41.00
Standard fittings, Bir. base	$100.00

Six to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $10; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B.

TIN PLATE TERNE PLATE

Prices per 100-pound box Pittsburgh

*Tin plate, coke base	$5.35

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24	4.00c to 4.10c

*Price subject to quantity differentials.

WASHERS

Wrought, c.l., Pitts. dist.	$6.50 to 6.75 off
Wrought, c.l., Chicago dist.	$6.70 to 26.90 off
Lock: to dealers	85-5 off
Lock: to consumers	85 off

RAILS, TRACK MATERIAL

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	$43.00
Relay rails, Pitts., 60 to 90 lb.	$24.00 to 29.00
Light rails, 25 to 45, mill	$36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7/16-inch and smaller, Pitts.	2.80c
Spikes, boat and barge, Pitts.	3.00c
Spikes, railroad, Chicago	2.80c
Track bolts, Pitts., steam roads	3.80c
Track bolts, Pitts., stand. jobbers	70 off list
Track bolts, Chicago	3.80c
Tie plates, Chicago, Pitts.	$43.00

BOLTS AND NUTS

Birmingham and Chicago

Discounts are for legitimate jobbing or large consuming trade purchasing in full-case lots, apply to lists of April 1, 1927.

Small lots are 55 to 60 per cent off.

CARRIAGE BOLTS

All sizes, cut thread 60 to 70 off

Rolled thread 3/8 x 6 and smaller take 10 per cent lower list.

Eagle list 60 to 70 off

MACHINE BOLTS

All sizes, cut thread 60 to 70 off

Rolled thread 3/8 x 6 and smaller take 10 per cent lower list.

Lag Screws	60 to 70 off
Plow bolts, Nos. 1-2-3-7 heads	60 to 70 off
Tap bolts	60 to 70 off
Blank bolts	60 to 70 off
Stud bolts without nuts	60 to 70 off
Stove bolts, 75, 20, 10 and 5 off in pkgs., 75, 20, 10 and 5 with 2½ off in bulk.	
Tire bolts	60-5 off

Nuts

Semifinished	60 to 70 off

HEXAGON CAP SCREWS

Milled	80-10-5 off
Upset 1 in. diam. and smaller	5 off

SQUARE HEAD SET SCREWS

Milled	80-5 off
Upset 1 in. diam. and smaller	80-10-5 off

RIVETS

Struc., c.l., Pitts-Cleve.	3.10c
Structural, c.l. Chicago	3.20c
**7/16-inch and smaller, Pitts.	70 and 10 off
Chi., Cleve.	70 to 70 and 10 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Raw Materials and Semifinished Products

SEMIFINISHED MATERIAL

Prices Per Gross Ton

BILLETS AND BLOOMS
4 x 4-inch base

Pittsburgh, open-hearth	$35.00
Pittsburgh, bessemer	35.00
Youngstown	35.00
Cleveland	35.00
Philadelphia	40.30
Chicago	37.00
Forging, Chicago	42.00
Forging, Pittsburgh	40.00 to 41.00
Forging, Philadelphia	45.30

SHEET BARS

Pittsburgh	$35.00
Youngstown	35.00
Cleveland	35.00
Chicago	37.00

SLABS

Pitts., Young.	$35.00
Cleveland	35.00

WIRE RODS

Pittsburgh, Cleveland	$42.00
Chicago	43.00

SKELP

All grades, Pittsburgh	1.90c to 1.95c

IRON ORE

LAKE SUPERIOR ORE
Per Gross Ton, Lower Lake Ports

Old range bessemer, 51½%	$4.80
Mesabi bessemer, 51½%	4.65
Old range nonbessemer, 51½%	4.65
Mesabi nonbessemer, 51½%	4.50
High phosphorus, 51½%	4.40

EASTERN LOCAL ORES
Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%	8.00
Copper free low phosphorus 58 to 65 per cent	nominal

FOREIGN ORE
Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-8% manganese	11.00 to 11.50
North African low phosphorus	12.00 to 12.50
Swedish foundry or basic, 65%, nominal at	9.00 to 10.00
Spanish and North African basic, 50 to 60 per cent	11.50 to 12.00
Newfoundland foundry, 55%	nominal
Tungsten future, short ton unit, duty paid	16.00 to 16.50

MANGANESE ORE

Prices do not include duty of 1 cent per pound of metallic manganese contained.

Brazilian	34 to 36 cents
Indian	34 to 36 cents
Caucasion, (53-55 per cent)	36 cents

FLOURSPAR

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.00
Washed gravel, import duty paid east. tide., gross ton	$21.00

REFRACTORIES

FIRE CLAY BRICK
Per 1000 f.o.b. works

First Quality

Pennsylvania	$43.00 to 46.00
Ohio	43.00 to 46.00
Illinois	43.00 to 46.00
Kentucky	43.00 to 46.00
Missouri	43.00 to 46.00
Maryland	43.00 to 46.00
Georgia and Alabama	40.00 to 45.00

Second Quality

Pennsylvania	35.00 to 38.00
Ohio	35.00 to 38.00
Illinois	35.00 to 38.00
Kentucky	35.00 to 38.00
Missouri	35.00 to 38.00
Maryland	35.00 to 38.00
Georgia and Alabama	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joliet, Ill., East Chicago, Ind.	52.00
Birmingham	50.00 to 51.00

MAGNESITE BRICK
Pet Net Ton

9 x 4½ x 2½	65.00

MAGNESITE
Net Ton Chester, Pa., and Baltimore base

Dead-burned grain magnesite	40.00

CHROME BRICK
Net Ton Chester, Pa., and Baltimore base

9 x 4½ x 2½	45.00

Pig Iron

Market Continues Active—New Orders Mainly Small for Prompt Shipment—Chicago Shipments Ahead of July

NEW sales of pig iron are fairly active, but most of the third quarter business has been closed, and interest in the market at this time is limited mainly to prompt requirements. Shipments by Lake Erie furnaces so far in August are about 15 per cent below the comparable period of July, except those with steelworks connections which are maintaining the July average. Shipments from Chicago district furnaces are in excess of those of July and of last August by a wide margin. Buffalo furnaces are piling iron for the first time since April, and report sales slower, though a firmer tone is reported in Buffalo iron for eastern shipment. Prices generally are steady, but southern tonnage in competitive territory is offered at $13, base, Birmingham.

PITTSBURGH, Aug. 13.—The pig iron market retains its steady tone, although the current rate of new business is not sufficiently heavy to increase producers' backlogs. Buyers continue to place small lots mainly for foundry grades for requirements over short periods, but refrain from extensive forward purchasing. Occasional requests for rush shipments indicate the low level of stocks, although at the same time producers' reserves are slow to expand. Recent orders vary from single carloads up to 500 tons at a time, practically all for shipment before the end of the quarter. Prices are well maintained and lack of usual midsummer easiness is held partly responsible for hesitancy of some consumers to make forward commitments. Shipments on contracts are holding fairly well, but are lower than the rate of a month ago. No. 2 foundry iron is firm at $18.50, valley, with basic at the same figure, and malleable and bessemer $19.

Boston, Aug. 13.—Sales of pig iron in the past week amounted to 5000 tons. Of this the Mystic Iron Works booked 1500 to 2000 tons, while the balance was divided between Buffalo and other New York state furnaces. Buffalo and eastern New York furnace prices show continued firmness, with $18 holding as minimum.

New York, Aug. 13.—While the peak of third quarter buying has passed, some fairly good tonnages remain to be placed for delivery over the next six weeks. Meanwhile, some fourth quarter inquiry is appearing. Prices appear unchanged at a range that checks back to a Buffalo base of $17.50 to $18. That prices have not definitely advanced is attributed by most trade interests to the influence of southern pig iron offerings. On the other hand, the $18 Buffalo price appears more in evidence on the general run of medium business. The American Radiator Co. continues to figure on 10,000 tons for its western plants. The New York Air Brake and American Brake Shoe & Foundry companies are in the market for relatively small tonnages, while the American Tube & Stamping Co. is feeling out the basic market on a lot reported at 5000 tons. A New England textile maker has closed on 1000 tons of foundry iron. A lot of 100 tons of charcoal iron has been purchased here at $24, base, furnace.

Buffalo, Aug. 13.—Consumers are covering pig iron inquiry slowly, and in some instances have bought only a small fraction of the total on which prices were taken. Few contracts in which delivery will extend beyond 30 days have been closed. Buffalo furnaces are now piling iron in quantities for the first time since April. Prices are holding firm, with furnaces inclined to quote $18 in the East only on the best business. One or two sellers now ask a minimum of $18.50, with the district base $1 higher.

The New York Airbrake Co. is inquiring for 950 tons of malleable and foundry iron for Watertown, N. Y., and the General Electric Co. for 500 tons of various grades of foundry iron for Schenectady, N. Y. Pierce Butler & Pierce also are inquiring for some foundry iron.

Youngstown, O., Aug. 13.—Undoubted signs of renewed activity among pig iron buyers appear in this district. These signs take the form of many small orders for various grades which in the weekly aggregate make a satisfactory showing to the furnace interests. No. 2 foundry, malleable and bessemer grades are being taken by the various foundry interests in eastern Ohio, the buyers paying the going market prices for third quarter delivery, No. 2 foundry at $18.50, valley, and malleable and bessemer at $19. Shipments on old orders from furnaces continue good, and sellers seem satisfied that a buying movement is at hand.

Cincinnati, Aug. 13.—The northern and southern pig iron markets are dull and sales during the past week declined sharply. Northern iron is firm while southern continues weak. Anderson Stove Co., Anderson, Ind., is asking for 500 to 1000 tons of either northern or southern iron.

Cleveland, Aug. 13.—Some of the merchant furnaces report shipments down 15 to 20 per cent so far in August, compared with the comparable period in July. Furnaces with steelworks connections note less change than those supplying foundries. Their shipments are nearly equal to those of July, and in one instance, larger. The market is quieter than in recent weeks, due to the fact third quarter requirements generally have been taken care of, and seasonal influences are tending to retard consumption. The total amount booked by furnace interests with headquarters in Cleveland was 17,300 tons in the past week, compared with 25,000 tons in the week preceding. A continuation of a fair amount of midsum-

(*Continued on Page* 426)

Pig Iron Prices

Per Gross Ton

Bessemer, valley furnace	$19.00
Bessemer, del. Pittsburgh	20.76
Basic, valley furnace	18.50
Basic, Pitts. dist. fur.	19.00
*Basic, del. Pittsburgh	19.63 to 20.13
Basic, Buffalo furnace	18.50
Basic, del. eastern Pa.	19.85 to 20.25
Malleable, valley furnace	19.00
Malleable, Pitts. dist. fur.	19.50
*Malleable, del. Pittsburgh	20.13 to 20.63
Malleable, Cleve. fur. for local del.	19.00
Malleable, Chicago furnace	20.00
Malleable, Buffalo furnace	20.00
Malleable, del. eastern Pa.	21.76 to 22.90
Malleable, Granite City fur.	20.50
No. 1 foundry, Chicago furnace	20.50
No. 1X, Eastern del., Phila.	22.76
No. 1X, Buffalo furnace	21.00
No. 2 foundry, valley furnace	18.50
No. 2 fdy., Pitts. dist. fur.	19.00
*No. 2 foundry, del. Pittsburgh	18.63 to 20.13
No. 2 plain, Buffalo furnace	19.50
No. 2 foundry, Chicago furnace	20.00
No. 2 fdy. Cleve. fur. for local del.	19.00
No. 2 fdy., Granite City fur.	20.00
No. 2 plain, del., Phila	21.76
No. 2 plain, Virginia furnace	19.50
No. 2 plain, Buffalo, del. Boston	22.41 to 22.91
No. 2 plain, N. J., tidewater	20.78 to 21.78
No. 2 Alabama, Bir. base	13.50 to 14.50
No. 2 Tenn., Birmingham base	14.00 to 14.50
No. 2 Tenn., del. Cincinnati	18.19 to 18.69
No. 2 Alabama, del., Cincinnati	17.69 to 18.19
No. 2 Alabama, del., Cleveland	20.51 to 21.01
No. 2 Alabama, del., Chicago	20.01 to 21.01
No. 2 Alabama, del. St. Louis	17.42 to 18.42
No. 2 Ala., Phila., dock dely.	19.75 to 21.01
No. 2 Ala., Balt., dock dely.	19.50 to 20.76
No. 2 Ala., Boston, dock dely.	20.25 to 21.41
No. 2X, east, N. J., tidewater	21.28 to 22.28
No. 2X, eastern, del. Phila.	22.26
No. 2X, foundry, Buffalo furnace	20.00
No. 2X, Buffalo, del. Boston	22.91 to 23.41
No. 2X, Virginia furnace	19.50 to 20.00
Gray forge, Pitts. dist. fur.	18.50
*Gray forge, del. Pittsburgh	19.13 to 19.63
Low phos., standard, valley	27.00
Low phos., standard, Phila.	24.26 to 24.76
Low phos., copper bearing fur.	23.00 to 23.50
Charcoal, Superior, del., Chicago	27.04

*Freight from Pittsburgh district furnace to points in Pittsburgh district 63c, 76c and $1.13 per ton.

CANADIAN PRICES

No. 1 foundry, del. Toronto	$24.60
No. 1, foundry, del. Montreal	26.00
No. 2 foundry, del. Toronto	24.10
No. 2 foundry, del. Montreal	25.50
Malleable, del. Toronto	24.60
Malleable, del. Montreal	26.00
Basic, del. Montreal	24.50

Silvery iron Jackson county, O., furnaces, in per cents: 5—$22; 6—$23; 7—$24; 8—$25; 9—$26; 10—$28; 11—$30; 12—$32; 13—$34.

Bessemer ferrosilicon, Jackson county, O., furnaces, in per cents: 10—$30; 11—$32; 12—$34; 13—$36; 14—$38; 15—$41; 16—$43.50; 17—$46.50.

The Market Section

Coke

Beehive Furnace Fuel Easier, as Result of Larger Accumulations of Stock

FURTHER increase in production of beehive furnace coke has resulted in sales at distress prices, and the market generally is 10 cents lower than a week ago, at $2.75. Higher prices on small lots have disappeared. Some inquiries are coming out for fourth quarter. By-product coke plants in the Chicago district are operating full.

Pittsburgh, Aug. 13.—The beehive coke market is slightly easier, offerings of furnace fuel increasing faster than demand, resulting in occasional accumulations of distress lots. This coke is disposed of at forced sale to avoid demurrage charges, with concessions 10 to 20 cents from the regular market. The price of $2.85 for single carloads has practically disappeared, and the market is now $2.75, although in a sense nominal. Some inquiry is being received for fourth quarter furnace coke, but sellers are not anxious to quote, looking for a stronger market in September. Foundry coke continues quiet, and unchanged. Production at merchant ovens is fairly steady. Total production in the Connellsville district for the week ending Aug. 3 was 100,730, against 103,580 tons the preceding week, and according to the *Connellsville Courier*.

Boston, Aug. 13.—Sales of foundry coke are slow. Prices are unchanged.

New York, Aug. 13.—Aside from continued weakness in beehive furnace coke, with standard grades available for delivery before Sept. 1 at $2.65, Connellsville, the coke situation is steady. Foundry coke is $3.75 to $4.85, Connellsville, and by-product foundry coke $9 to $9.40, delivered, Newark; $11, delivered, New England points and $9, delivered at Philadelphia.

Cincinnati, Aug. 13.—By-product foundry coke specifications increased during the past week and if the present rate is maintained throughout the month, oven representatives anticipate that August tonnage will be about as good as July, which was the best 30 day period since early spring. New business is quiet.

Chicago, Aug. 13.—By-product coke shipments are steady. Plants in the Chicago district are operating full. The lull at gray iron foundries is scarcely affecting coke shipments. Prices are unchanged.

St. Louis, Aug. 13.—By-product interests report demand for metallurgical coke about in the usual seasonal volume. Weather has had less effect on foundry operations than in the past, and jobbing plants' consumption of coke is heavy. Accumulations at ovens have gained, despite the reduced rate of production during the past several weeks. Prices are unchanged.

Birmingham, Ala., Aug. 13.—Better feeling is noted as coke inquiries and contract renewals come in. Production is kept close to capacity, less than 60 of all by-product ovens in the state being idle. Prices are steady.

Coke Prices

Prices per Net Ton

Beehive Ovens	
Connellsville furnace	$2.75
Connellsville foundry	3.75 to 4.85
New River foundry	6.00 to 6.50
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.75
By-Product Foundry	
Newark, N. J., del.	$9.00 to 9.40
Chicago ovens	8.00
New England del.	11.00
St. Louis del.	9.00
Birmingham, ovens	5.00
Indianapolis, del.	8.25
Ashland, Ky., ov., Connell. basis	6.50
Portsmouth, O., ov., Connell. basis	6.50
Buffalo ovens	8.75
Detroit, ovens	9.00
Philadelphia, del.	9.00

Ferroalloys

Shipments Far Ahead of Tonnage for 1928—Spot Sales Small

Pittsburgh, Aug. 13.—No abatement is seen in the steady rate of shipments of ferromanganese and spiegeleisen that has prevailed since the first of the year. The movement to date is far ahead of the tonnage for the corresponding 1928 period and for most interests is at a record level. Spot sales are few and in small lots, with quotations steady at $109.79, delivered Pittsburgh, for ferromanganese and $34 on lots up to 100 tons of 19 to 21 per cent spiegeleisen. Ferrotungsten continues strong at $1.45.

New York, Aug. 13.—Demand for ferroalloys is steady. Domestic spiegeleisen, 19 to 21 per cent, is firm at $34, furnace. English spiegeleisen, 26 to 28 per cent, is nominally unchanged at $36.50. Special ferroalloys are moving in large tonnages but prices are unchanged. Tungsten continues strong, with little ore in sight. Ferrotungsten is slightly higher at $1.45 to $1.50 a pound contained.

Paul G. Leoni Returns

Paul G. Leoni, president of William H. Muller & Co. Inc., and the Iron Ore Corp. of America, New York, has returned from a two months' visit to various European countries.

Bolts, Nuts, Rivets

Business Heavy for Season But Stocks Remain Small

NUT AND BOLT PRICES, PAGE 410

Pittsburgh, Aug. 13.—Specifications for bolts, nuts and rivets continue at slower pace noted earlier this month. Jobbers are light buyers and most consumers are holding stocks to a minimum and restricting forward purchases. Despite the decline, however, business is seasonally heavy. Prices are steady at 60 to 70 off for bolts and nuts and 3.10c, Pittsburgh, for large rivets. Small rivets generally are 70 and 10 off, with some business going at 70 and 5 off and 70 off.

New York, Aug. 13.—Pennsylvania railroad has placed heavy orders for bolts and nuts, including substantial quantities of bronze bolts for electrification work between Trenton, N. J. and Philadelphia. Delaware, Lackawanna & Western is inquiring for bolt supplies, also for electrification work. New York, New Haven & Hartford is reported inquiring for bolts and nuts, in addition to 5000 kegs of spikes. Jobbers are specifying a little more actively but the situation generally is far from brisk. Eastern operations of nut and bolt plants average 60 to 65 per cent. Prices are unchanged.

Chicago, Aug. 13.—Tractor manufacturers are specifying large sized nuts fairly heavily. Automobile specifications are off and are not expected to revive materially for a month. Considering all products, bolt and nut specifications for August approximate those of the comparable period of July. Large rivets continue 3.20c, base, Chicago; small rivets are 70 and 10 to 70 off; and bolts and nuts are 60 to 70 off.

Portland Concrete Machines Co., Hammond, Ind., has changed its capital structure from 2500 shares of $100 par value each to 2500 shares of no par value.

Ferroalloy Prices

(In dollars, except ferrochrome)

Ferromanganese, 78 to 82 per cent, tidewater, duty paid	$105.00
Ferromanganese, del. Pittsburgh	109.79
Spiegeleisen, 19 to 21 per cent, domestic furnace, spot†	34.00
*Ferrosilicon, 50 per cent, freight allowed, carloads	83.50
*Do., less carload	88.50
Do., 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.00
Do., for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.45 to 1.50
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload producer's plant, net ton	160.00
Do., one ton to carload	170.00
Ferrophosphorus, per ton, carload 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala. (24 per cent)	122.50

†Quantity diff. apply on 100 tons and over.
*These prices contract, spot $5 higher.

Scrap

Strength Asserts Itself and Prices Steadily Higher—Shortages Develop in Some Grades

LACK of sufficient supplies of iron and steel scrap is causing dealers to pay higher prices in some instances than consumers will meet. Covering contracts is becoming more difficult as the situation moves into the early fall. A generally stronger situation is developing.

Chicago, Aug. 13.—Solely on the strength of consumer buying iron and steel scrap prices do not warrant change, but dealer trading and sentiment are of such proportions as to warrant some advances. No consumer is known to have paid over $15.25 for the best heavy melting steel, but dealers are paying up to $15.50. The leading buyer of steel is out of the market for several weeks, but dealers believe it will pay more when it re-enters. Small lots of borings have been sold at $10.50 and one producer recently obtained $10.60, tracks. No. 1 busheling, compressed sheets, shoveling steel and No. 2 wrought are marked up 25 cents on the strength of dealer activity. Steel car axles are up 50 cents. Less railroad scrap is now available, but yards are being cleaned up and offerings are expected to be heavier in the fall. Both gray iron and malleable foundries are slow in their buying of scrap, accordingly.

Boston, Aug. 13.—Were a better supply of steel turnings and forge flashings available, a considerably better tonnage could have been shipped in the past week at advancing prices. The general list did not develop much

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except where otherwise stated

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	12.00 to 12.50
Boston, dealers	12.50 to 13.00
Boston, No. 2	10.00 to 10.50
Buffalo, No. 1	16.50 to 18.00
Buffalo, No. 2	14.75 to 15.00
Chicago	15.00 to 15.50
Cincinnati, deal	14.25 to 14.50
Cleveland, No. 1	16.00 to 16.50
Cleveland, No. 2	14.00 to 14.50
Detroit, No. 1 deal.	14.50 to 15.00
Detroit, No. 2 deal.	11.50 to 12.00
East Pa., del. mill	16.50 to 17.00
N. Y., deal. R. R.	12.50 to 13.35
N. Y., deal. yd	8.25 to 9.25
Pittsburgh, No. 1	19.00 to 19.50
St. Louis, No. 1	14.75 to 15.25
Valleys, No. 1	18.50 to 19.00

COMPRESSED SHEETS

Buffalo (dealers)	14.75 to 15.00
Chicago	13.50 to 14.00
Cleveland	15.75 t o16.25
Detroit, dealers	14.00 to 14.50
E. Pa. new mat	15.00
Pittsburgh	18.50 to 19.00
Valleys	18.00 to 18.50

BUNDLED SHEETS

Buffalo	12.00 to 12.50
Cincinnati, deal.	11.25 to 11.75
Cleveland	12.50 to 13.00
Eastern Pa.	11.50
Pittsburgh	16.50 to 17.00
St. Louis	10.50 to 11.00

SHEET CLIPPINGS LOOSE

Chicago	8.75 to 9.25
Cincinnati	9.00 to 9.50
Detroit, dealers	9.50 to 10.00
St. Louis	10.50 to 11.00

STEEL RAILS, SHORT

Birmingham	14.00 to 14.50
Boston	10.50 to 12.50
Buffalo	19.25 to 19.75
Chicago (3 feet)	17.50 to 18.00
Chicago, 2 ft. and under	18.00 to 18.50
Cincinnati, deal.	18.50 to 19.00
Detroit, dealers	17.00 to 17.50
Pittsburgh (3 ft.)	20.00 to 21.00
Pittsburgh, 2 ft. and under	20.50 to 21.50
St. Louis	17.75 to 18.25

STOVE PLATE

Birmingham	12.50 to 13.00
Boston consumers	11.00 to 11.50
Buffalo	12.75 to 13.25
Chicago, net	11.50 to 12.00
Cinn., deal., net	9.25 to 9.75
Detroit, net. deal.	9.50 to 10.00
Eastern Pa.	11.50 to 12.00
N. Y., deal., mill	8.00 to 8.50
St. Louis	12.50 to 13.00

COUPLERS, SPRINGS

Buffalo	19.25 to 19.75
Chicago	17.00 to 17.50
Eastern Pa.	21.00 to 21.50
Pittsburgh	22.00 to 22.50
St. Louis	15.75 to 16.25

ANGLE BARS—STEEL

Chicago	17.25 to 17.75
St. Louis	15.00 to 15.50

LOW PHOSPHORUS

Buffalo, billets and bloom crops	19.50 to 20.00
Cleve. billet and bloom crops	17.50 to 18.00
Eastern Pa.	21.00 to 22.00
Pitts. billet and bloom crops	23.00 to 24.00
Pitts., sheet bar crops	21.00 to 22.00

FROGS, SWITCHES, GUARDS

Chicago	16.50 to 17.00
St. Louis	16.50 to 17.00

SHOVELING STEEL

Chicago	15.00 to 15.25
Cleveland	11.50 to 12.00
Detroit, dealers	9.00 to 9.50
St. Louis	14.25 to 14.75

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	10.00 to 11.00
Boston, dealers	11.00 to 11.50
Buffalo, No. 1	13.50 to 14.00
Buffalo, No. 2	16.00 to 16.50
Chicago, No. 1	15.00 to 15.65
Chicago, No. 2	14.75 to 15.25
Cinn., No. 2	14.25 to 14.50
Eastern Pa.	16.00 to 16.50
N. Y., No. 1 deal.	12.00 to 12.50
Pittsburgh, No. 2	19.00 to 19.50
St. Louis, No. 1	13.50 to 14.00
St. Louis, No. 2	14.50 to 15.00

SPECIFICATION PIPE

Boston	9.75 to 10.00
Eastern Pa.	15.00
New York, deal.	10.25 to 10.75

BUSHELING

Buffalo, No. 1	14.75 to 15.00
Chicago, No. 1	13.25 to 13.75
Cinn., No. 1 deal.	11.00 to 11.25
Cinn., No. 2	7.00 to 7.50
Cleveland, No. 1	14.50 to 15.00
Cleveland, No. 2	10.75 to 11.00
Detroit, No. 1 deal.	13.00 to 13.50
St. Louis, No. 1	10.00 to 10.50
Valleys, new No. 1	16.00 to 16.50

MACHINE SHOP TURNINGS

Birmingham	7.00 to 8.00
Boston	7.00 to 7.50
Buffalo	8.50 to 9.00
Chicago	7.50 to 8.00
Cincinnati, deal.	8.50 to 9.00
Cleveland	9.50 to 10.00
Detroit	8.75 to 9.25
Eastern Pa.	11.50 to 12.00
New York, deal.	7.50 to 8.00
Pittsburgh	12.50 to 13.50
St. Louis	7.50 to 8.00
Valleys	11.00 to 11.25

MIXED BORINGS, TURNINGS

For blast furnace use

Boston, dealers	6.10 to 6.50
Buffalo	11.75 to 12.25
Cincinnati, deal.	9.25 to 9.75
Cleveland	10.75 to 11.00
Detroit, dealers	9.75 to 10.25
Eastern Pa.	11.00
New York, deal.	7.00 to 7.25
Pittsburgh	12.50 to 13.00

CAST IRON BORINGS

Birmingham, chem.	13.00 to 13.50
Birmingham, plain	7.00 to 8.00
Boston chem.	10.00 to 10.25
Boston, dealers	6.50 to 6.60
Buffalo	11.50 to 12.00
Chicago	10.25 to 10.75
Cincinnati, deal.	9.25 to 9.75
Cleveland	10.75 to 11.00
Detroit, dealers	8.75 to 9.25
Eastern Pa.	11.50
Eastern Pa., chem.	14.50
New York, deal.	7.00 to 7.25
Pittsburgh	12.50 to 13.00
St. Louis	9.50 to 10.00

PIPE AND FLUES

Cincinnati, deal.	9.00 to 9.50

RAILROAD GRATE BARS

Buffalo	12.25 to 12.75
Chicago, net	11.50 to 12.00
Cincinnati	10.00 to 10.50
Eastern Pa.	12.00 to 12.50
New York, deal.	8.75 to 9.25
St. Louis	13.00 to 13.50

FORGE FLASHINGS

Boston dealers	10.50 to 10.75
Buffalo	13.75 to 14.25
Chicago	10.50 to 11.00
Cleve. over 10 in.	13.25 to 13.50
Detroit	13.00 to 13.50

FORGE SCRAP

Boston, dealers	9.00 to 9.25
Chicago	18.00 to 18.50
Eastern Pa.	14.00

ARCH BARS AND TRANSOMS

Chicago, net	21.00 to 21.50
St. Louis	21.50 to 22.00

Iron, Steel Works Scrap

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	14.25 to 14.75
Chicago, steelworks	12.50 to 13.00
Cleveland	14.00 to 14.50
Eastern Pa.	14.50 to 15.00
Pittsburgh	16.50 to 17.00
St. Louis	10.00 to 10.50

STEEL CAR AXLES

Birmingham	17.00 to 18.00
Boston, ship point	18.00 to 19.00
Buffalo	19.50 to 20.00
Chicago	18.50 to 19.05
Eastern Pa.	23.00 to 23.50
Pittsburgh	22.00 to 22.50
St. Louis	19.00 to 19.50

SHAFTING

Boston, ship point	14.00 to 15.00
Chicago	17.10 to 17.65
Eastern Pa.	19.00 to 20.00
New York, deal.	14.00 to 14.50
St. Louis	18.50 to 19.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	11.00 to 12.00
Boston, iron	14.00 to 14.50
Buffalo, iron	14.00 to 14.50
Buffalo, steel	19.25 to 19.75
Chicago, iron	14.00 to 14.50
Chi., rolled steel	18.50 to 19.00
Cincinnati	12.50 to 13.00
Eastern Pa. cast.	16.50 to 17.00
Eastern Pa., rolled	20.50 to 21.50
N. Y., iron, deal	12.00 to 12.50
Pittsburgh, iron	16.50 to 17.00
Pittsburgh, steel	22.00 to 22.50
St. Louis, iron	14.75 to 15.25
St. Louis, steel	18.50 to 19.00

No. 1 CAST SCRAP

Birmingham, cup.	13.00 to 14.00
Buffalo	15.75 to 16.00
Boston, textile	14.50 to 15.00
Chicago, mach.	16.25 to 16.80
Chicago, railroad	15.25 to 15.60
Chicago, agri.	14.65 to 15.20
Cincinnati, Mach. cupolas, gross	19.00 to 19.50
Cleveland, cupola	15.75 to 16.25
Detroit, net, deal.	12.00 to 13.00
East Pa., cupola	16.00 to 17.00
N. Y., cup., deal.	12.50 to 13.00
N. Y., del. local foundries	17.00
Pittsburgh, cupola	15.00 to 16.00
San. Fran., del.	13.50 to 14.00
Seattle	14.50 to 14.75
St. L. No. 1 mach.	15.25 to 15.75
St. Louis, No. 1	14.50 to 15.00

HEAVY CAST

Boston	10.50 to 11.00
Buffalo, breakable	12.75 to 13.25
Cleve., breakable	12.50 to 12.75
Detroit, auto, net dealers	12.00 to 13.00
Detroit, break. deal	9.00 to 9.50
Eastern Pa.	15.00
New York, deal.	11.50 to 12.00
Pittsburgh	13.00 to 13.50

MALLEABLE

Boston, railroad	18.50 to 19.00
Buffalo	18.00 to 18.50
Chicago, agri.	15.50 to 16.00
Chicago, railroad	17.00 to 17.50
Cinn., R. R., deal	15.25 to 15.75
Cinn., agri., deal.	14.25 to 14.75
Cleveland, rail	17.50 to 18.00
Detroit auto deal.	15.25 to 15.75
St. Louis, rail	14.75 to 15.25

Miscellaneous Scrap

RAILS FOR ROLLING

5 feet and over

Birmingham	13.00 to 14.00
Boston	13.00 to 13.50
Buffalo	16.50 to 17.00
Chicago	17.75 to 18.25
Eastern Pa.	17.00 to 17.50
New York	12.75 to 13.25
St. Louis	17.00 to 17.50

LOCOMOTIVE TIRES

Chicago, cut	18.50 to 19.00
St. Louis, No. 1	15.00 to 15.50

LOW PHOS. PUNCHINGS

Chicago	16.75 to 17.25
Pittsburgh	20.50 to 21.50

activity. Shipments to mills are limited, owing to lack of material and sellers appear to be without much stock.

New York, Aug. 13.—Notwithstanding lack of consuming demand, scrap dealers' buying prices are unchanged. In the steel grades this may be attributed in a measure to scarcity, but in other descriptions, particularly certain grades of cast and wrought, steadiness appears due more to lack of sufficient business to afford a test. Meanwhile, quoted prices on some of these latter grades are little more than nominal.

Buffalo, Aug. 13.—Improved demand for many grades of scrap is noted. Steelworks have placed several small orders for No. 1 heavy melting steel at $18. Dealers are cautious because of small supplies and competition of outside consumers. Short steel rails, rolled steel wheels and knuckles and couplers have been advanced 25 to 50 cents by sales during the past few days, while unexpected purchasing of machine shop turnings revealed scarcity of supplies which forced prices up 50 to 75 cents a ton.

Philadelphia, Aug. 13.—Scrap reflects somewhat the increased volume of general business. Moderate lots of heavy melting steel have been bought in the past week. This grade continues at $16.50 to $17.

Pittsburgh, Aug. 13.—Scrap buying is slow to broaden and sales of the week have been few. Heavy melting steel has sold at $19 to $19.50, though some mills are out of the market and offer considerably lower prices. Heavy melting steel on the Pennsylvania list brought $19.50 to $19.75, against less than $19.25 a month ago. Steel specialties are up 50 cents on recent sales.

Cleveland, Aug. 13.—No. 1 heavy melting steel scrap is stronger and has been advanced 50 cents to $16 to $16.50. No. 2 steel is holding at $14 to $14.50. Steel for the leading local consumer is holding at around $15.25 to $15.50. Compressed sheets are stronger, now being quoted at $15.75 to $16.25. The leading local consumer continues to regulate shipments on steel and is taking little blast furnace scrap. Other interests are taking shipments steadily. Blast furnace scrap continues at $10.75 to $11 with the top of the range generally prevailing.

Cincinnati, Aug. 13.—Increasing scarcity of iron and steel scrap has brought the market into a firmer position than at any time for four months. Heavy melting steel and No. 2 railroad wrought are up 25 cents a ton, but dealers find it difficult to keep covered. Yard stocks are decreasing and the only accumulation is in cast grades. Accordingly, No. 1 machinery cast is down 25 cents a ton.

Detroit, Aug. 13.—Prices of iron and steel scrap show practically no change although sentiment is strong. Conditions are holding the market firm and indications are for an active situation.

St. Louis, Aug. 13.—Iron and steel is scarce and strong. The chief factor is that railroads are not shipping heavily on tonnages already sold. Mills are in need of scrap, and are bearing down heavily on dealers to get material. Mills, while in urgent need of scrap, are disclined to follow the advance. There is strong resistance to prices, and dealers' prospects for profits this month are not promising.

Canadian Scrap

Dealers' Buying Prices

MONTREAL
Per Gross Ton

Iron Axles	$22.00
Steel axles	20.00
Car wheels	16.00
Stove plate	13.00
Wrought pipe	6.00
Turnings	6.50
Heavy melting steel	8.00

TORONTO

Steel axles	15.00
Iron axles	17.00
Heavy melting steel	9.50
Turnings	7.50
No. 1 mach. cast (net)	16.00
Malleable (net)	12.50

Birmingham, Ala., Aug. 13.—The market is slow, with the steels, including heavy melting steel moving a little. Quotations on the latter product remain firm, $12.50 for the best quality. All other prices are tentative and weak.

Toronto, Ont., Aug. 13.—While there is little change in general conditions in iron and steel scrap, new business is steadily becoming more active. While demand for steel scrap is spotty, there has been some improvement in iron grades. Prices are firm but unchanged.

Semifinished Steel

Specifications Heavy—Large Transactions Lacking

SEMIFINISHED STEEL PRICES, PAGE 410

Pittsburgh, Aug. 13.—Sustained steelmaking has not resulted in a large accumulation of semifinished material, and although requirements of consumers are well taken care of most producers have little available for the open market. Specifications against sheet bar contracts are heavy and shipments of rerolling and forging billets are holding fairly well. Some consumers have not been forced to supplement tonnage carried over into third quarter with additional purchases, and there is a lack of large transactions. Occasional small sales of rerolling billets, slabs and sheet bars continue to bring $35. Wire rods are firm at $42, with most of recent activity retained.

Youngstown, O., Aug. 13.—While new business in billets, slabs and sheet bars has tapered off due to some seasonal slowing down in mill operations in this district, yet producers of these commodities continue to find demand for practically all of their surplus they care to ship. Their own finishing mills are absorbing vast tonnages of semifinished and the recent curtailing of open hearths here has been due almost entirely to routine need for repairs. Billets, slabs and sheet bars hold at $35, Pittsburgh and Youngstown, while wire rods are firm at $42, Cleveland and Pittsburgh.

Corporation Investigating Columbia Plants

New York, Aug. 13.—Acting under the direction of Comptroller W. J. Filbert, investigators for the United States Steel Corp. are understood to have arrived on the Pacific coast to look over the properties of the $38,000,000 Columbia Steel Corp. with a view to ultimate purchase. It will be recalled that some days ago the Steel corporation announced through Chairman Myron C. Taylor that negotiations with the Columbia Steel managers had been carried on here, and finally a 90-day option to purchase by the Steel corporation was concluded. It is said that it will require a considerable of that portion of time to allow the investigators to go over the properties of the Columbia company which are extensive and also are scattered over three states. At the same time, before the option is closed, if it be closed, the Steel corporation heads will submit their plans to the federal department of justice as to whether the deal comes under the Sherman act.

The Columbia Steel Co., whose name is taken from a steel casting concern located at Portland, Oreg., acquired back in 1909 by Wigginton E. Creed, then a San Francisco lawyer. Creed became interested in San Francisco public utilities, but in 1914 he projected a steelworks at Pittsburg, Calif., installing both open hearths and finishing mills. Later the company acquired the Torrance, Calif. works of the Llewellyn Iron Works, and in 1923 it built a blast furnace at Provo, Utah, to use local iron and also coal in its by-product ovens. Wire, wire fence and wire nail mills, sheet mills and just last spring tin plate mills were added at the Pittsburg mills, thus rounding out the company's lines of finished product. Pig iron from the Utah furnace has been sold successfully all over the Pacific coast states. The Portland plant has been retained and enlarged.

Creed died two years ago, or before all his extensive plans had been put into operation, and has been succeeded as president of the Columbia Steel Corp. by Joseph D. Grant. A number of interests in San Francisco have invested heavily in the company which is regarded there as one of California's leading industries.

What is said to be the largest generator of electric power in the world recently was installed at the Hell Gate station of the United Electric Light & Power Co., New York. A cross compound turbine generator, it has a rated capacity of 165,000 kilowatts and was manufactured by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

The Market Section

Bars

Demand Holds High Rate Despite Summer Lull—Deliveries Most Important Factor

CONSUMERS of soft steel bars continue to require much more material than usual at this season and buyers place business more on the basis of possible deliveries than price. The latter is firm at established levels and no concessions are offered. Such recession in demand as has appeared has not affected production materially. Price is firm.

BAR PRICES, PAGE 409

Chicago, Aug. 13.—Soft steel bar requirements continue unusually high for the season. For one important maker specifications equal shipments and contracts are high. Another maker reports specifications not quite equal to shipments and a tendency for the gap to spread. Light automobile schedules this month and next tend to hold down bar demand. Implement makers have not yet begun to specify extensively for fall programs. Bar deliveries are slowly improving, with the average still four to seven weeks. Concrete reinforcing bar interests are taking fair lots of bars. Soft steel bar prices are 2.05c to 2.15c, base Chicago.

New York, Aug. 13.—Competition for current steel bar business lies largely in deliveries. While three weeks appears about the average on the more common specifications, it is possible to do less. Drop forge makers are particularly keen on deliveries. Prices are unchanged at the minimum of 1.95c, Pittsburgh.

Buffalo, Aug. 13.—Demand for bars has slowed somewhat with the number and size of orders showing a decline compared with second quarter. Steelworks think the lull is temporary and plan to hold production at present levels in anticipation of early revival of buying.

Pittsburgh, Aug. 13.—Demand for hot-rolled merchant bars still is below the rate of 30 days ago, but the decline is no heavier than would be expected from reduced automobile production. Consumers are maintaining smaller stocks and despite lessening pressure for material requests for rush shipments are not uncommon. Mills are able to effect fairly prompt delivery on most sizes, backlogs generally extending ten days to three weeks. Demand for alloy bars is spotty but seasonally heavy in the aggregate. Merchant bars continue firm at 1.95c, Pittsburgh.

Cleveland, Aug. 13.—Merchant steel bar mills are catching up somewhat on their backlogs. They now are able to work into scheduled rollings orders taken from time to time during a current week. This gives the customers better delivery service than several weeks ago when they pressed the mills to take on extra tonnage and they could not do so. While some of the vigor has gone out of the automotive specifying rate, miscellaneous consumption is relatively high for the summer season. Road building machinery manufacture continues active as do various other equipment lines, taking fairly large quantities of bars. Jobber demand is only fair. Local mills quote 1.90c, Cleveland. Outside mills quote 1.95c, Pittsburgh or 1.95c, delivered Cleveland as occasion requires.

Philadelphia, Aug. 13.—Steel bar demand has improved materially and included in specifications here this past week are a good many large tonnages for early shipment.

Granted Tax Rebates

Washington, Aug. 13.—John Illingsworth Steel Co., Philadelphia, has been granted a rebate by the bureau of internal revenue for overassessments of income and profits taxes amounting to $45,636.44 for 1919; $5,987.93 for 1920 and $2,268.57 for 1923.

The bureau also has granted a rebate of $114,339.70 to the Lake Shipbuilding Co., Buffalo, N. Y. (Succeeded by Buffalo Marine Construction Co.) for 1918.

Four of the largest current transformers ever built recently were shipped from the Sharon, Pa. plant of the Westinghouse Electric & Mfg. Co. to the Bushkill, Pa. plant of the Pennsylvania Power & Light Co. Fifty-six freight cars were necessary to carry the transformers, oil and other incidental equipment. The units are rated at 220,000 volts and each weighs 300 tons.

Plates

Steady Flow of Miscellaneous Orders Gives Mills Little Opportunity to Reduce Backlogs

DEMAND for plates continues fairly active, and mills have reduced backlogs only slightly. Plate requirements at Chicago are relatively the heaviest of the finished steel lines. During the week 4000 tons of tank work was placed at Chicago, and new inquiry for tank work totals 7000 tons. Eastern mills continue operating practically at capacity.

PLATE PRICES, PAGE 409

Pittsburgh, Aug. 13.—Plate specifications are steady and prospects for sustained demand into September are regarded as bright. Unfilled orders in the freight car, pipe line and barge markets represent from one to two months' work, and there is a fairly heavy tonnage of incoming plate business for miscellaneous purposes. The outlook for additional awards of freight cars and line pipe, however, is only fair. Mills have reduced backlogs only slightly during the past 30 days, delivery generally holding to about six weeks. The market continues 1.95c, Pittsburgh.

New York, Aug. 13.—While miscellaneous demand is good, few sizable orders are noted in plates. Railroad buying in this district continues to hold off and there is little in the general run of fabricated plate work, such as oil tanks, penstocks and line pipe. Plate mills continue at virtual capacity, with prices unchanged at 1.95c to 2.05c, Pittsburgh, or 2.05c to 2.15c, Coatesville. Deliveries range from three to six weeks.

Cleveland, Aug. 13.—Individual orders for plates are not large, but the aggregate of miscellaneous specifications for a wide variety of uses, is satisfactory to the mills. Oil well stills, tanks, etc., take fairly large quantities and boiler shops sustain their consumption. Mills report a sustained demand and are able to make deliveries within two or three weeks usually, although on some sizes a local plant is filled up for three or four weeks. The 1.95c, Pittsburgh, price is entirely firm.

Philadelphia, Aug. 13.—Plate demand is so well maintained that eastern mills continue to operate full with order books sufficiently large to keep them thus occupied for three to four weeks. Prices continue firm at 2.05c to 2.15c, base Coatesville. Tank and boiler shops are particularly busy.

Chicago, Aug. 13.—Plate requirements continue relatively the heaviest of the finished steel lines. The Milwaukee maker of electrically welded pipe is booked solid through October, with considerable prospective work ahead. The 275,000 tons for the proposed Doherty pipe line to Chicago is reported still pending. Four thousand tons of tank work in two lots has been placed with local fabricators. New inquiry for tank work totals 7000

tons in four projects for the South and Southwest, bringing pending work up to 10,000 to 12,000 tons. Quiet closing of considerable tonnage in the past week is reported. Plate demand this year has been more steady than usual. Plate deliveries average six to eight weeks. The market is 2.05c to 2.15c, base Chicago.

CONTRACTS PLACED

Unstated tonnage, siphons, United States reclamation project Vale, Oreg., to Thompson Mfg. Co.

CONTRACTS PENDING

700 tons (sheet piling) Alki street sea wall, Seattle. Bids received.
2000 tons, penstock and surge tank, Tacoma, Wash. Bids received.
290 tons, riveted pipe line, Bremerton, Wash. Bids received.

Tube Works Ownership Changes Hands

The small-size welded-steel tube works of the Fritz-Moon Tube Co. at Butler, Pa., were taken over Tuesday by representative officials of the Republic Iron & Steel Co., Youngstown, O., and of Spang, Chalfant & Co., Pittsburgh. The Butler works have been operated by the Fritz-Moon company for seven or eight years for the manufacture of welded steel pipe for sizes ranging from ⅛-inch in diameter up to 1¼ inches. The company owns the patents under which it operates and the new owners of the plant also will operate under these.

The company will retain its name of the Fritz-Moon Tube Co. under its new ownership. The new officers, however, are: President, John Barton, formerly with the seamless tube department of the National Tube Co.; vice president, Harry L. Rownd, who is vice president of the Republic company; and secretary and treasurer, David S. Dennison, formerly of Trumbull Steel and Republic companies.

Through the acquisition of the Butler works, both Republic and Spang-Chalfant will supplement with the small-sized tubing there produced, their own lines of welded steel pipe which are of the larger diameters for all the various purposes for which steel tubes are employed.

Would Pay $160,000 For Penn Seaboard Plant

Philadelphia, Aug. 13.—Chancellor J. O. Wolcott, court of chancery, Newcastle county, Delaware, has appointed Sept. 4 for the hearing on the petition of Receivers Alexander F. Crichton and William P. Barba for permission to sell the Newcastle plant of the Penn Seaboard Steel Corp. H. A. Robinson, Franklin Trust building, Philadelphia, is said to have made a proposition to the receivers to buy this property for $160,000.

Pipe

Public Lettings Dwindle—Industrial Buying Fair—3000 and 700-Ton Inquiries Out at Buffalo

PUBLIC lettings in cast pipe are at low ebb. Private and industrial buying is fairly well maintained. Two eastern orders involved 260 and 680 tons, respectively. Queens, N. Y., will buy 325 tons. Backlogs of steel pipe, especially lapwelded, are heavy. A Bradford, Pa., line pipe interest wants 3000 tons of 24-inch and a Buffalo water concern asks for 700 tons of the same size.

PIPE PRICES, PAGE 410

New York, Aug. 13.—Bids on 325 tons of 20-inch cast pipe for the borough of Queens, New York, are to be opened Aug. 15. Prices continue uncertain, large tonnage offerings bringing out a wide range of bids. Inquiry is slow and active business is not sufficiently extensive to establish a nominal market price. National Cast Iron Pipe Co. booked two orders, 680 tons and 260 tons, respectively.

While there is little spectacular buying of steel pipe at the moment, a good day to day run of domestic and export business prevails, involving from carload lots to 300 and 400 tons.

Buffalo, Aug. 13.—Pipe demand is improving. A Bradford, Pa., pipe line interest announces an extension project to require about 3000 tons of 24-inch pipe. A Buffalo water concern will purchase 700 tons of the same size for a line extension. Several other good sized lots are expected to be asked for shortly.

Pittsburgh, Aug. 13.—Tubular products demand makes a favorable comparison with activity of a year ago. Merchant pipe requirements have moderated during the past 30 days and mechanical tubing reflects the slower operations in the automotive industry. Producers of large sizes of lapwelded pipe, however, still have substantial backlogs. The movement of locomotive and boiler tubes is well sustained. Little change is noted in demand for drill pipe or casing. Line pipe also is devoid of developments.

Cleveland, Aug. 13.—Pipe mills in northern Ohio continue to receive numerous orders for small lots of butt-weld pipe from jobbers. The turnover appears to have improved somewhat during the past few weeks, with house building programs being well sustained. Prompt deliveries are available. An occasional order for lapweld finds mills filled up until October or November; some until the end of the year. One mill named mid-October delivery on 1200 feet of 12-inch, but received the business after the customer strongly objected to the deferred date.

Chicago, Aug. 13.—Industrial and private buying of cast iron pipe continues relatively heavier than public lettings. Weakness in southern pig iron has not been reflected in pipe prices due to the prior quarterly covering of pipe foundries. Cast pipe, 6 to 24 inches, is $45.20 to $46.20, Chicago, while 4-inch pipe is $49.20 to $50.20, Chicago.

Birmingham, Ala., Aug. 13.—Production of cast iron pressure pipe is easing off and lettings are less numerous. Unfilled tonnage is being worked off steadily with active shipments. Quotations are unchanged so far as the base is concerned with reports of concessions current.

CONTRACTS PLACED

680 tons, large size cast pipe, for Texas Oil Co., Houston, Tex., to National Cast Iron Pipe Co.
515 tons, 6 and 12-inch, McKinley Hill district improvement, Tacoma, Wash., to S. A. Moceri.
260 tons, 16-inch class B cast pipe for Public Works Engineering Corp., Champaigne, Ill., to National Cast Iron Pipe Co.
217 tons, 6 to 12-inch class B, Atlantic street improvement, Long Beach, Calif., to the Griffith Co.

CONTRACTS PENDING

CAST PIPE

875 tons, 10 to 23-inch class B, Bremerton, Wash. Bids opened.
377 tons, 6 to 10-inch class B, Anaheim, Calif. Bids Aug. 22.
325 tons, 20-inch cast pipe for borough of Queens, N. Y. Bids open Aug. 15.
201 tons, 4 and 6-inch class C, improvement El Prado avenue, San Diego, Calif. Bids Aug. 12.
144 tons, 4 and 6-inch class B, improvement of Plata avenue, San Diego, Calif. Bids Aug. 12.
112 tons, 4 to 8-inch class B, improvement of Estrelle street, San Diego, Calif. Bids Aug 26.

STEEL PIPE

3000 tons, 24-inch, for extension to lines of the Petroleum Reclamation Co., Bradford, Pa., bids in.
700 tons, 24-inch, for Western New York Water Co., Buffalo, line extension, Blasdell to Buffalo. Bids in.

More Shares Issued by Aetna Standard

Youngstown, O., Aug. 13.—Four shares of the new common stock of the Aetna Standard Engineering Corp. have been ordered distributed by the directors for each outstanding share of common, according to President M. I. Arms. By vote recently, shareholders authorized an increase in the number of shares of common stock from 100,000 to 200,000. It is understood the new shares will be

placed upon a higher earning basis than the old which have been receiving $2.50 a share yearly regular and $1 extra in dividends. President Arms said:

"The decision to increase the number of shares outstanding came about through our reinvestment in our plants at Warren and Ellwood City. These improvements have increased our production capacity about 25 per cent at these plants."

Unfilled Tonnage Falls

Unfilled tonnage on books of the United States Steel Corp. July 31 was 168,733 tons less than on June 30, the third successive month in which decline has been met. In spite of this loss of tonnage the total unfilled tonnage at the end of July was 517,250 tons greater than July 31, 1928. Comparisons follow:

Date	Total	Change, tonnage	Change, per cent	
July 31, 1929	4,088,177	168,733—	3.9	—
June 30, 1929	4,256,910	47,257—	1.10	—
May 31, 1929	4,304,167	123,596—	2.88	—
Apr. 30, 1929	4,427,763	17,045+	0.38	+
Mar. 31, 1929	4,410,718	266,377+	5.70	+
Feb. 28, 1929	4,144,341	34,854+	0.84	+
Jan. 31, 1929	4,109,487	132,775+	3.34	+
Dec. 31, 1928	3,976,712	303,712+	8.25	+
Nov. 30, 1928	3,673,000	78,030—	2.80	—
Oct. 31, 1928	3,751,030	52,662+	1.42	+
Sept. 30, 1928	3,698,368	74,325+	2.05	+
Aug. 31, 1928	3,629,042	53,116+	1.40	+
July 31, 1928	3,570,927	66,082—	1.81	+
June 30, 1928	3,637,009	220,187+	6.45	+
May 31, 1928	3,416,822	455,311—	11.70	—
Apr. 30, 1928	3,872,133	463,073—	10.70	—
Mar. 31, 1928	4,335,206	62,983—	1.43	—
Feb. 29, 1928	4,398,189	122,242+	2.80	+
Jan. 31, 1928	4,275,947	303,073+	7.62	+
Dec. 31, 1927	3,972,874	518,430+	15.00	+
Nov. 30, 1927	3,454,444	113,404+	3.39	+
Oct. 31, 1927	3,341,040	192,921+	6.10	+
Sept. 30, 1927	3,148,113	47,924—	1.49	—
Aug. 31, 1927	3,196,037	54,023+	1.70	+
July 31, 1927	3,142,014	88,768+	2.80	+
June 30, 1927	3,053,246	2,305+	0.075	+
May 31, 1927	3,050,941	405,191—	11.70	—

Tin Plate

Activity Well Sustained—Operations Average 90 Per Cent

TIN PLATE PRICES, PAGE 410

Pittsburgh, Aug. 13.—Tin plate operations are holding surprisingly well for this period. Specifications for packers cans show the decline usual in midsummer, although business so far this year exceeds that of the corresponding 1928 period and general line can demand continues active. Well sustained activity in tin plate is in contrast to generally unfavorable crop reports. Some independents hold operations at capacity, although in view of the lack of substantial backlogs this rate is expected to be revised downward shortly. The average for the district is slightly below 90 per cent. Tin plate continues $5.35 per 100-pound base box, Pittsburgh.

New York, Aug. 13.—While tin plate mills are operating at a high rate, sellers assert that specifications are coming through somewhat slowly, whereas normally at this season specifying should be at its height. Prices, however, are unchanged.

Decker Screw Products Co., Albion, Mich., has increased its capital from $150,000 to $300,000.

Sheets

New Business Well Sustained—August Orders Exceeding July's for Leading Interest

NEW sheet business shows little decrease from the tonnage of a month ago, Pittsburgh district mills report, while for the leading interest August is exceeding the July average. Miscellaneous requirements are large and offset the reduction in orders from the automotive industry. Jobbers are soon to begin season buying of roofing material. Prices are steady.

SHEET PRICES, PAGE 409

Pittsburgh, Aug. 13.—The sheet market retains surprisingly vitality for midsummer. Incoming business so far this month shows little decrease from the rate a month ago, while for the leading interest new business and specifications exceed the July average. A well sustained demand from other consuming industries is offsetting what decline has occurred in automotive requirements, although the latter tonnage still is seasonally heavy and unfavorable only when compared with spring months. Demand for roofing material is markedly improved and requirements of manufacturers of agricultural implements, electric refrigerators and freight cars bulk large. Mills are encountering practically no difficulty in obtaining sufficient semifinished steel, although slight trouble still is experienced in securing proper analyses. Operations genrally are smooth, interrupted only by occasional warm weather. The average for the district continues around 95 per cent. Backlogs have been reduced but little during the past few weeks and delivery holds at around four weeks on most grades. Prices show no further weakness, with galvanized continuing at a minimum of 3.50c, Pittsburgh. Black sheets generally are 2.85c, although some small lots bring 2.95c. Blue annealed is steady at 2.35c, with automobile material 4.10c.

New York, Aug. 13.—Prices on black sheets are easy, holding at around 2.80c to 2.85c, Pittsburgh, and on galvanized sheets at 3.50c to 3.60c, Pittsburgh. Deliveries on these products now range around four to six weeks. Blue annealed plates are steady at 2.20c, Pittsburgh, and blue annealed sheets at 2.35c, Pittsburgh. Deliveries are offered around six weeks.

Buffalo, Aug. 13.—Demand for full finished sheets continues good, with unfilled tonnage only slightly under the high point of the year. The price is 4.365c, Buffalo. Black sheets orders are smaller, although there has been no major reduction in production, and no further recession in prices, which now are 3.115c, Buffalo.

Cincinnati, Aug. 13.—The increased demand from highway and roofing sources coupled with the steady heavy demand from manufacturers of electrical devices, metal furniture and similar lines brought fresh bookings of district sheet mills in advance of production during the past week. Backlogs have been increased slightly. Prices are steady.

Youngstown, O., Aug. 13.—Since independent sheet mill operations in this district continue at 87½ per cent, unchanged from last week, good backlogs of orders on books apparently insure at least as satisfactory mill operations through August; and with some mills, well into September. New buying of the common grades of sheets has been seasonally slow. Renewal of production activity by various Michigan automotive producers, following upon the mid-July vacation season and preparation for new model manufacture on the part of several important builders, is being reflected by the slightly accelerated rates of mill shipments this week from autobody sheet producers. This is expected to increase in September. Meanwhile, steel furniture makers have slowed down from their former insistent demand for material, and they, too, are expected to pick up next month. Quotations continue steadily in this district, with common black at 2.85c, Pittsburgh, Nos. 9 and 10 gage blue annealed at 2.20c, and 13 gage at 2.35c; autobody at 4.10c and galvanized at 3.60c.

Chicago, Aug. 13.—Jobbers will soon initiate their seasonal buying of roofing material. As through most of this year, warehouses are good buyers of blue annealed plates. Requirements for all grades of sheets are strong in volume and in price, excepting in the South and Southwest. Deliveries on blue annealed range from 12 to 14 weeks and on black and galvanized are about four weeks. Mill prices of blue annealed sheets are 2.45c and black 3.05c. Further shading of galvanized sheets makes the market 3.75c to 3.80c, western mill, or 3.80c to 3.85c, delivered Chicago.

St. Louis, Aug. 13.—Producers and distributors of sheets report a continuation of satisfactory conditions. The volume of new purchasing is up to expectations, and specifications are bettter than usual at this season. Prices are steady.

Cleveland, Aug. 13.—While some sheet makers are catching up more or less rapidly on the backlogs, having had a quiet July, others have enough miscellaneous business accruing from day to day to keep deliveries deferred four to six and in some cases seven weeks. In fact in electrical sheets

(*Concluded on Page* 426)

Structural Shapes

Subway-Bridge Work to Fore—10,000-Ton Bridge Let and 9400-Ton Subway—Inquiry Rate Is Sustained

BRIDGES and subways lead in structural awards this week, a 10,000-ton bridge across the Hackensack river and a 9400-ton subway job being let to Bethlehem Steel Co. and McClintic-Marshall Co., respectively. A 6500-ton bank job was let at Newark, N. J. Exclusive of bridges and subways, the New York Structural Steel Board of Trade reports that lettings for July aggregated 57,775 tons as compared with 47,299 tons for June and 57,147 tons for July, 1928. Demand remains remarkably well sustained for this season of the year and mills report a brisk specifying rate. One of the largest items pending is the 6000-ton state building at Harrisburg, Pa. Much other work is being figured in the preliminary stages, presaging a good fall and winter.

STRUCTURAL SHAPE PRICES, PAGE 409

New York, Aug. 13.—Bethlehem Steel Co. has been awarded 10,000 tons for the Pennsylvania railroad's passenger bridge over the Hackensack river, constituting the largest award of the week. Phoenix Bridge Co. was awarded the second bridge, about 4500 tons, while Hay Foundry & Iron Works was awarded about 6500 tons for a bank and office building at Newark, N. J. A 9400-ton subway job was let to McClintic-Marshall Co. Subway and bridge orders remain heavy but with shipments far above the average rate, mills are catching up on backlogs. Total tonnage pending is near the record for this season of the year.

Structural awards in July were 57,775 tons as against 47,299 tons in June, according to the New York Structural Steel Board of Trade, whose figures do not include bridge or subway work. July awards last year were 57,147 tons.

Boston, Aug. 13.—Projects which have been overhanging the market are about cleared up with the award of 840 tons of structural shapes last week. The Boston Bridge Works received contracts for 650 tons in three bridges, while a machine shop, taking 190 tons, was placed with the New England Structural Co.

Philadelphia, Aug. 13.—Structural shape demand is active and prices again show a firmer tone, with carloads bringing up to 2.13c, delivered Philadelphia. The full price range is 1.96c to 2.13c, base delivered Philadelphia. Eastern mills are operating full.

Pittsburgh, Aug. 13.—Fabricators are fairly busy estimating on new work, but awards lack large individual tonnages. Several Detroit district bridges booked by a local fabricator involve 1175 tons. Operations are well sustained although backlogs have been reduced materially in recent weeks. The aggregate of current small awards is fair. Specifications for plain material are off only slightly from the rate a month ago. The market generally is 1.95c, Pittsburgh.

Cleveland, Aug. 13.—Action is deferred on most of the larger projects involving structural shapes. Small jobs are fairly numerous. The H. K. Ferguson Co. awarded 1300 tons for the boiler plant of the Western Electric Co., Baltimore, to the Lehigh Structural Steel Co. Plans are out on the jail-courts building here, taking between 1000 to 1500 tons. Bids close in about 30 days. A new inquiry is out for two bridges for the Cleveland Interurban Railway Co., requiring 240 and 260 tons, respectively. Mills report fair specifications. The plain material price of 1.95c, Pittsburgh, applies on the ordinary run of tonnages. Nothing so far has been done with reference to fourth quarter.

Chicago, Aug. 13.—Structural shops are fairly comfortably booked, although capacity has by no means been fully absorbed. This is the result of the aggregate of small business toward which the outlying territory, including Milwaukee, Kansas City and St. Louis, has contributed materially. Mills can make fairly prompt delivery in some standard srtuctural sections. Plain material is 2.05c to 2.15c, base, Chicago.

CONTRACTS PLACED

10,000 tons, Pennsylvania railroad passenger bridge over Hackensack river, near Jersey, to Bethlehem Steel Co.

9400 tons, subway route 106, section 6, New York, to McClintic-Marshall Co.

6500 tons, 34-story building, National Newark & Essex Banking Co., Newark, N. J., to Hay Foundry & Iron Works.

4500 tons, Pennsylvania railroad freight bridge across Hackensack river, New Jersey, to Phoenix Bridge Co. Reported last week as 6000 tons.

3000 tons, assembly plant, Tarrytown, N. Y., for Chevrolet Motor Co., Detroit, to R. C. Mahon Co.

1900 tons, car repair shop, Chicago, Milwaukee, St. Paul & Pacific railroad, West Milwaukee, Wis., to Worden-Allen Co.

1300 tons, power plant, Western Electric Co., Baltimore, to Lehigh Structural Steel Co., through H. K. Ferguson Co., Cleveland, contractor and engineer.

1000 tons, bridge work, Big Four railroad, to American Bridge Co.

800 tons, mill building, Laclede Steel Co., St. Louis, to St. Louis Structural Steel Co.

700 tons, bridge at Greenfield, O., for Detroit, Toledo & Ironton railroad, to American Bridge Co.

680 tons, hotel, 230-238 East Fifty-first street, New York, to Harris Structural Steel Co.

600 tons, Pennsylvania railroad bridges, to McClintic-Marshall Co.

600 tons, grade separation work for Chicago, Milwaukee, St. Paul & Pacific railroad, to American Bridge Co.

500 tons, Pennsylvania railroad bridges, to American Bridge Co.

500 tons, Henrici building, Chicago, to American Bridge Co.; previously reported as 1000 tons.

500 tons, 107th regiment armory, New York, to Dreier Iron Works.

500 tons, Lawyers' association building, Versey street, New York, to Taylor-Fichter Steel Construction Co.

500 tons, building, Rockford Drop Forge Co., Rockford, Ill., to Wisconsin Bridge & Iron Co.

466 tons, addition to school No. 208, Brooklyn, N. Y., to Bethlehem Fabricators Inc.

400 tons, addition, Lycoming Mfg. Co., Williamsport, Pa., to Shippers Car Line Co.

375 tons, Twenty-first street viaduct, Superior, Wis., for Northern Pacific railroad, to American Bridge Co.

350 tons, Capilano river bridge, British Columbia, to Western Canada Structural Steel & Bridge Co.

325 tons, Y. M. C. A. building, Reading, Pa., to Progressive Iron Works.

300 tons, building 1480 Broadway, to Taylor-Fichter Steel Construction Co.

275 tons, several bridges, Detroit, for Detroit, Toledo & Ironton railroad, to American Bridge Co.

257 tons, reclamation work, Boise, Idaho, to unknown interest.

200 tons, Bass river bridge, Beverly, Mass., to Boston Bridge Works.

200 tons, River street bridge, Boston, to Boston Bridge Works.

200 tons, bridge, Goulds Mills, Me., to Boston Bridge Works.

200 tons, bridge at Detroit for Detroit, Toledo & Shore Line railroad, to American Bridge Co.

200 tons, Seaboard Airline railroad bridge near Raleigh, N. C., to American Bridge Co.

200 tons, schol, Lockport, Ill., to Mississippi Valley Structural Steel Co.

180 tons, silk mill, Lebanon, Pa., to Progressive Iron Works.

173 tons, central heating plant, Asbury Park, N. J., to Bethlehem Fabricators Inc.

140 tons, machine shop, Boston & Maine railroad, Somerville, Mass., to New England Structural Co.

100 tons, Mitchell street viaduct, Atlanta, Ga., to Virginia Bridge & Iron Co.

100 tons, addition to Soldiers' Home, Sawtelle, Calif., to Brombacher Iron Works.

100 tons, Vance office building, Seattle, and bridge in Clallam county, Washington, to Isaacson Iron Works.

Awards Compared

	Tons
Awards this week	42,021
Awards last week	41,444
Awards two weeks ago	37,805
Awards this week in 1928	49.794
Average weekly wards, 1928	39,082
Average weekly awards, 1929	41,603
Average weekly awards, July	34,526
Total awards to date, 1928	1,271,426
Total awards to date, 1929	1,372,916

CONTRACTS PENDING

6000 tons, state building, department of agriculture, Harrisburg, Pa.

2400 tons, East Eleventh street viaduct, Ta-

coma, Wash. Bids in.
1600 tons, apartment, Riverside drive and Seventy-seventh street, New York.
1500 tons, Detention House for Women, West Tenth street, New York.
1200 tons, Bell Telephone Co. building, Dallas, Tex.
1200 tons, public schol 232, Brooklyn, N. Y.
1000 tons, bakery building, Gordon Baking Co., Queens, N. Y.
1000 tons, highway bridge, Erie county, Pennsylvania.
1000 to 1500 tons, jail-courts building, city of Cleveland. Plans out; bids close in about 30 days.
700 tons, garage, Nash Motor Co., Jamaica, Long Island, N. Y.
600 tons, addition to South station, Boston.
500 tons, two bridges, Cleveland Interurban Railway Co., Cleveland. Bids in.
500 tons, building, Curtis Airport Corp., East St. Louis, Ill.
415 tons, building, Calumet & Arizona Co., Phoenix, Ariz.
225 tons, Roman Catholic Diocese office building, Brooklyn, N. Y.
170 tons, prison roof, Auburn, N. Y.; M. Shapiro & Son, low bidders.
Unstated tonnage, building, Bell Telephone Co., Scarsdale, N. Y.
Unstated tonnage, warehouse addition, First National Stores, East Hartford, Conn.
Unstated tonnage, two bridges, passenger station and yard building, New York state, for New York Central railroad.
Unstated tonnage, 140-foot lift span at Sturgeon Bay, Wis.; estimated to cost $600,000; plans approved by United States war department.
Unstated tonnage, telephone building, Hempstead, Long Island, N. Y.

Tractor Sales Lower

Washington, Aug. 13.—Shipments of electric industrial trucks and tractors in July declined from June but are substantially higher than in July, 1928. Department of commerce figures show a high increase for the seven months compared with the same period of 1928. Monthly comparisons follow:

	Domestic Tractors	All other Types	Exports
1928			
July	5	87	15
Total (7 mo.)	66	676	91
August	5	85	6
September	11	102	5
October	5	109	20
November	9	117	6
December	10	126	17
1928 Total	106	1,215	145
1929			
January	4	129	19
February	10	121	3
March	14	187	10
April	12	169	13
May	28	174	9
June	17	168	16
July	19	145	5
Total (7 mos.)	104	1,093	75

Fewer Engines Available

Class I railroads July 15 had 8225 locomotives in need of repair or 14.3 per cent of the number on line, according to the car service division of the American Railway association, Washington. This was an increase of 772 compared with the number in need of repair July 1, at which time there were 7453 or 13 per cent, the lowest number in need of repairs ever reported by the railroads.

Locomotives in need of classified repairs July 15 totaled 4426 or 7.7 per cent, an increase of 274 compared with July 1, while 3799 or 6.6 per cent were in need of running repairs, an increase of 498 compared with July 1.

Class I railroads July 15 had 5414 serviceable locomotives in storage compared with 5411 July 1.

Concrete Bars

Larger Jobs Grow More Numerous—Lettings Are Active—Prices Firmer

PROJECTS involving 200 to 800 tons at a time becoming slightly more numerous in the concrete bar market. Lettings this past week are headed by such items as a 600-ton job in San Francisco, and a 550-ton job at Newark, N. J. Chicago reports total letting of 1500 tons topped by a 775-ton building. Smaller work was let elsewhere. Price shading is less in evidence.

REINFORCING BAR PRICES, PAGE 409

Pittsburgh, Aug. 13.—Mills are heavily engaged in the production of concrete reinforcing bars. Incoming business continues in excess of the rate a year ago. Backlogs have been reduced slightly during the past 30 days but still are substantial for this period. One 360-ton job was placed but small individual lots make up the bulk of current awards. New work lacks large tonnages. Pending business is heavy. The market is steady at 2.30c, Pittsburgh, for cut lengths and 2.05c for stock lengths.

New York, Aug. 13.—Demand for reinforcing concrete bars remains fairly brisk at steady and unchanged prices. Shading is less in evidence. Small 10 to 20-ton orders are numerous. Inquiry is fair with several projects calling for close to 500 tons each. Kalman Steel Co. was awarded 450 tons for the General Aniline Works warehouse at Rensselaer, N. Y. The 275 tons for the Cutler-Hammer Mfg. factory unit in the Bronx will be furnished by the Concrete Steel Co.

Boston, Aug. 13.—While only about 300 tons in odd tonnages were placed for concrete bar jobs last week, trade interests look for a fairly large tonnage to be placed soon. The banking and office building for E. H. Rollins & Son, 75 Federal street, here, will take 600 or 700 tons and the warehouse for G. E. Fox & Co. at Hartford, Conn., will take 700 tons. Three or four less important tonnages also are pending, totalling 500 to 700 tons.

Buffalo, Aug. 13.—Demand for reinforcing bars continues brisk. Two lots of 800 tons each are reported as new inquiries this week, one in Buffalo and the other in the southern part of the state. Competition for business has brought out prices as low as 2.315c, Buffalo, on lots suitable for shipment direct from mills. Lots shipped from warehouses are priced around 2.565c, Buffalo.

Philadelphia, Aug. 13.—Warehouse prices on concrete bars have been advanced $1 per ton, the new range being 2.77c to 3.02c, base, delivered locally, depending upon the tonnage involved. Rail steel bars for shipment from mill now are firm at 1.95c, base, Pittsburgh.

Awards Compared

	Tons
Awards this week	5,540
Awards last week	2,364
Awards two weeks ago	7,378
Awards this week in 1928	6,123
Average weekly awards, 1928	6,189
Average weekly awards, 1929	6,236
Average weekly awards, July	5,435
Total awards to date, 1928	231,563
Total awards to date, 1929	205,774

CONTRACTS PLACED

775 tons, Trustees System Service building, Chicago, to Calumet Steel Co.
600 tons, building, Shell Oil Co., San Francisco, to Soule Steel Co.
550 tons, service station, Packard Motor Co., Newark, N. J., to Igoe Bros.
450 tons, warehouse, General Aniline Works, Rensselaer, N. Y., to Kalman Steel Co.
450 tons, Wilbur Wright school, Chicago, to unstated company.
400 tons, warehouse, American Can Co., Third street, San Francisco, to Soule Steel Co.
360 tons, McSorley apartments, Pittsburgh, to Concrete Steel Co.
300 tons, sewers, Philadelphia, to Taylor-Davis Inc.
275 tons, 6-story factory building, Cutler-Hammer Mfg. Co., Southern boulevard and 144th street, New York, to Concrete Steel Co.
270 tons, subway, route 106, section 6, New York, to McClintic-Marshall Co.
225 tons, garage, 2036 North Clark street, Chicago, to Calumet Steel Co.
175 tons, abattoir, Evans street, San Francisco, to W. S. Wetenhall Co.
160 tons, building for Berwyn State Bank, Berwyn, Ill., to Calumet Steel Co.
150 tons, addition to Apex Hosiery Mills, Philadelphia, to Taylor-Davis Inc.
150 tons, Soldiers' and Sailors' Memorial bridge, Harrisburg, Pa., to Taylor-Davis Inc.
150 tons, building, American Cigar Co., Philadelphia, to Jones & Laughlin Steel Corp., through Turner Construction Co.
100 tons, bridge at Watersville, Pa., to Taylor-Davis Inc.

CONTRACTS PENDING

800 tons, bridges, Elizabeth, N. J., and state highway route 25.
800 tons, Chevrolet Motor Co. assembly plant, Tarrytown, N. Y.; John W. Cowper Co., Buffalo, general contractor.
800 tons, addition Buffalo General Electric Co., Buffalo; Derdinger Construction Corp. general contractor.
700 tons, warehouse, G. E. Fox & Co., Hartford, Conn.
630 tons, factory, First and Tehama streets, San Francisco. Bids being received.
600 tons, office building, 75 Federal street, Boston.
350 tons, New Jersey state highway route 29, section 4.
150 tons, theater, Stockton, Calif. Bids Aug. 12.

The Market Section

Iron Ore

Shipments to Interior Furnaces Show Heavy Increase

IRON ORE PRICES, PAGE 410

Cleveland, Aug. 13.—Shipments of iron ore from Lake Erie ports to interior furnaces totaled 5,385,652 tons in July. The July, 1928, shipments were 4,110,864 tons. The movement this season to Aug. 1 amounted to 17,182,569 tons, compared with 11,410,116 tons in the same period last year. The balance on dock Aug. 1 was 4,452,100 tons, 932,907 tons less than on Aug. 1, 1928. The Lake Superior Iron Ore association's report of receipts and shipments from Lake Erie docks for the season of 1929 to Aug. 1 follows:

Port	Receipts	Shipments	Dock balance Aug. 1, 1929
Buffalo (B)	2,478,006	139,506	2,878
Erie	606,734	593,791	79,385
Conneaut	4,617,498	4,507,884	1,467,638
Ashtabula	4,504,829	4,414,238	1,428,144
Fairport	1,109,054	1,075,968	234,746
Cleveland	5,469,358	4,000,115	796,545
Lorain	1,934,790	1,083,922	66,048
Huron	725,348	726,920	347,278
Toledo	992,767	640,225	29,438
Total	22,438,384	17,182,569	4,452,100
Comparative 1 year ago	15,124,977	11,410,116	5,385,007

Receipts to Aug. 1, at other than Lake Erie ports are reported:

Port	Season
Detroit	404,473
Indiana Harbor	1,309,720
Gary	2,748,420
South Chicago (C)	3,813,928
Sault Ste. Marie, Ont.	288,979
Point Edward, Ont.	280,036
Total	8,845,556
Comparative 1 year ago	6,791,432

New York, Aug. 13.—Decided strength dominates the foreign iron ore market. The principal mines in North Africa and Spain are practically sold up to the end of 1930, with conditions of the Swedish mines little different. Occasional lots are available, but nothing like regular shipments are offered. Spanish North African basic, 50 to 60 per cent, now is quoted 12.00c to 12.75c per unit, alongside docks, Atlantic ports. North African low phosphorus is higher at 12.50c. Heavy demand from England and Germany has contributed to the strength of the market. One seller declares the change in the iron ore market in Europe is almost comparable with conditions during the war. A European buying movement has started in England where contracts have been made calling for shipment to 1934. This has been followed by similar contracts by continental steelworks, with the result of a shortage of good iron ore. Bilbao Bubio which in Europe is considered standard and which not long ago was quoted at 18 shillings is now nominally 24 shillings.

The foreign manganese ore market is weak with little business here to test prices. Moscow advices are that the Steel corporation intends to buy 80,000 to 150,000 tons of manganese ore annually from the Georgian manganese ore trust over five years.

Rails, Cars

July Car Awards Sink to Low Point — 5000 Pending — Accessory Inquiries Mount

JULY freight car awards only totaled 341 as against 5886 in June. The 7-month total, 63,157 cars, however, exceeds the aggregate for all of 1928. However, a total pending list of 5000 brightens prospects for August. Chicago rail mills expect more rail buying by Oct. 1. Several roads are out now for accessories, such as spikes, nuts, bolts, rivets, etc., including New Haven and others.

RAILROAD TRACK PRICES, PAGE 410

New York, Aug. 13.—Complete returns for July indicate the placing of 341 domestic freight cars, the lightest total since August, 1926, when 152 cars were awarded. However, the total of 63,157 cars for the first seven months of this year substantially surpasses the total for 12 months last year and places it on an approximate parity with annual totals in 1927 and 1926, respectively. A comparative table follows:

	1929	1928	1927	1926
Jan.	13,196	4,160	14,710	8,830
Feb.	15,944	10,220	5,960	12,895
March	12,023	2,958	4,955	8,895
April	8,205	6,043	3,675	4,615
May	7,562	2,531	5,425	4,448
June	5,886	2,422	7,440	4,285
July	341	582	2,295	1,265
Total (7 mos.)	63,157	28,916	44,460	45,233
Aug.	.....	677	1,181	152
Sept.	.....	1,378	682	3,335
Oct.	.....	2,853	886	2,840
Nov.	.....	6,140	1,189	3,925
Dec.	.....	4,799	14,897	8,990
Total	.....	44,763	63,295	64,475

Current car demand continues slack. New York, New Haven & Hartford, which recently divided 30,000 tons of rails between the United States Steel Corp. and the Bethlehem Steel Co., has entered the market for round tonnages of spikes, along with other accesory items.

Approximately 3900 domestic freight cars are actively pending here and 540 passenger cars.

Pittsburgh, Aug. 13.—New inquiry for track fastenings involves only small individual lots, but with what replacement business is appearing supplements specifications against old orders in sufficient volume to bring total activity to a fairly high seasonal level. General business shows the usual seasonal decrease from preceding months but compares favorably with the rate a year ago. Light rails are moving slowly.

Chicago, Aug. 13.—Good secondary buying of rails for delivery this year is expected prior to Oct. 1. Northern Pacific inquiry for 15,000 tons is expected to materialize in several weeks. New business in rails and in fastenings the past week was light. Five thousand freight cars are pending in eastern and western markets, including 1000 for the Chicago, Milwaukee, St. Paul & Pacific, 400 refrigerator cars for the Pacific Fruit Express, and 500 for the Central of Georgia. Light rail orders are negligible.

Birmingham, Ala., Aug. 13.—Ensley works of Tennessee Coal, Iron & Railroad Co. is working off its unfilled tonnage on rails rapidly. Indications point to a complete shut down for 60 days for repairs and betterments. Export contracts have been filled, shipments from here being made by the Warrior river barge service, government operated.

CAR ORDERS PLACED

Braden Copper Co., 23 30-ton flat cars, to American Car & Foundry Co.

Cities Service Tank line, four tank cars, to American Car & Foundry Co.

Philadelphia & Reading Coal & Iron Co., 10 35-ton automatic drop bottom dump cars, to American Car & Foundry Co.

Phillips Petroleum Co., 15 tank cars, 10 to the General American Tank Car Corp., and five to American Car & Foundry Co.

LOCOMOTIVE ORDERS PLACED

Cerro De Pasco Copper Co., five small electric engines, to Baldwin Locomotive Works.

New Idria Quicksilver Mines, one small electric type locomotive to Baldwin Locomotive Works.

Northern Indiana Public Service Co., one electric type locomotive to Baldwin Locomotive Works.

Patapsco & Black River, two locomotives, to Baldwin Locomotive Works.

Texas & Pacific, 15 locomotives to Lima Locomotive Works.

CAR ORDERS PENDING

Central of Georgia, 500 50-ton gondolas; to ask bids shortly for 50 flat cars.

Chicago, Milwaukee, St. Paul & Pacific, 1000 70-ton low-side gondolas; bids Aug. 22.

New York, New Haven & Hartford, two to 20 oil electric motor cars and 12 baggage car underframes.

Pacific Fruit Express, 400 50-ton refrigerator cars; bids Aug. 28.

Santa Fe, 200 gondola underframes.

Texas Co., four tank cars.

Imports Are Varied

Philadelphia, Aug. 13.—Imports here during the week ending Aug. 10 included 122 tons of chrome ore from Portuguese Africa; 6000 tons of manganese ore from Brazil; 747 tons of pig iron from British India; 1000 tons of pig iron from the United Kingdom; 47 tons of steel scrap from the United Kingdom; 14 tons of steel bands from France.

The Market Section

Strip

Tight Situation Continues in Spite of Lessened Specifications —Mill Backlogs Steady

PRODUCTION continues heavy but mills have not yet caught up sufficiently on deliveries to ease the situation materially. Hot-rolled strip is in less demand but cold-rolled still has a heavy backlog. Four to five weeks delivery is the best obtainable on cold-rolled from most makers. Prices have not changed from established levels and some mills report easier deliveries.

STRIP PRICES, PAGE 410

Chicago, Aug. 13.—With August and September light months in automotive production, hot strip specifications have moderated. Mills are thereby enabled to catch up somewhat on deliveries. Hot strip is 2.10c to 2.30c, Chicago, for the narrow and 2.00c to 2.10c for the wide. Cold strip is 2.75c to 2.85c, Pittsburgh-Cleveland.

Worcester, Mass., Aug. 13.—Cold rolled strip continues rather inactive with the usual summer depression. Greater stability in prices indicates resumption of operations in the fall. Prices are from 2.90c to 3.00c.

New York, Aug. 13.—Quotations on strip steel are fairly steady with hot-rolled up to 6 inches at 2.00c, Pittsburgh, and 6 to 24 inches at 1.90c. Cold-rolled is quoted at 2.75c, Pittsburgh, with small lots going at $2 a ton higher. Some mills report easier deliveries with hot-rolled available at one to three weeks and cold-rolled at two to three weeks. Some other mills are offering three to four weeks on hot-rolled and four to six weeks on cold-rolled.

Pittsburgh, Aug. 13.—Strip producers are able to maintain heavy operations despite lack of brisk demand for hot-rolled material. Business in cold-rolled strip spurted recently, adding materially to backlogs. Shipments now are extended four to five weeks. Unfilled business in narrow sizes of hot strip represents only about two weeks' work, although on wider material four weeks is the more general delivery. Automotive requirements are lighter this month, and strip demand indicates little upturn before September. Tonnage still is running ahead of last year, however, due to sustained production in the light car field. Prices are unchanged, with hot strip continuing 1.90c and 2.00c, Pittsburgh, for the two widths. Cold-rolled generally is 2.75c, with 2.85c applied only on small lots.

Cleveland, Aug. 13.—Strip needs continue apparently to diminish. In a few cases of automobile manufacturers, recoveries are noticed but in the main, specifications are much lower than in June or July. Some cold strip plants only are able to operate 50 per cent and can make deliveries in a week or two. Other hot mills have caught up on deliveries and now quote four to six weeks instead of eight to 10 weeks. Cold strip makers have advanced their asking price on desirable tonnage from 2.75c, Cleveland or Pittsburgh to 2.85c. Hot strips wider than 6-inch and under 24-inch are firm at 1.90c; the narrower sizes bring 2.00c, Pittsburgh.

Yawata Steel Works, Japan, and several iron ore mining companies, have entered into an agreement for the latter to supply 300,000 tons of iron ore annually to the former.

Cold Finished Steel

Little Change in Specifications—Automotive Needs Continue

COLD FINISHED PRICES, PAGE 410

Pittsburgh, Aug. 13.—Lighter requirements of automotive interests for cold finished steel bars compared with July is offset to an extent by sustained demand from other sources, but total incoming tonnage is running slightly below the rate 30 days ago. Midsummer readjustments in automobile models indicate little upturn in production before end of month. Market is steady at 2.30c, Pittsburgh.

Cleveland, Aug. 13.—Specifications are slightly more active on third quarter cold finished bars. Several automotive customers are going ahead on their new models and are accepting fairly heavy shipments. Others in the cheaper car class, while on a slightly lower basis than in June-July, still require large tonnages. The 2.35c, Cleveland, price is firm.

Wire

Demand Little Changed and Producers Are Active—Nails Continue Weak Feature

CONDITIONS in the wire market are little changed, the aggregate business being far ahead of that usually entertained at midsummer. Manufacturers' wire continues to lead the market and nails are the weak feature. Prices generally are steadier, with occasional concessions in highly competitive territory. Production in this department is unchanged.

WIRE PRICES, PAGE 410

Pittsburgh, Aug. 13.—Wire demand holds at about the rate of earlier this month. The automotive industry is taking slightly less material than during July, although the total movement is well ahead of last year's tonnage. Despite weakening in nail prices, quotations on wire generally hold at 2.50c to 2.60c. Fencing is steady at $65, although occasional concessions are made in barbed wire. Wire nails continue $2.55 to $2.65.

Worcester, Mass., Aug. 13.—The wire market shows slight deviation from three months ago. Demand continues well spread and production equals previous months. Prices are steady. Plain bright wire to dealers remains at 2.75c, Worcester base.

Buffalo, Aug. 13.—Price pressure on nails is noted. Welded mesh for road construction is a leader in the wire line, with mills at capacity in this department.

Chicago, Aug. 13.—Demand for nails and wire is slightly higher than a week ago. Specifications from the automotive industry is declining. Prices are unsteady.

Cleveland, Aug. 13.—Although demand for manufacturers' wire is well sustained, nail orders are only fair. Bolt, nut and rivet manufacturers continue to buy heavily and miscellaneous demand holds to the May-June rate. Prices are firm but occasionally competitive figures are encountered in nearby districts.

Bethlehem To Build New Open-Hearth Plant

Construction of a new open-hearth department at the Lackawanna plant of the Bethlehem Steel Co., Buffalo, will be started immediately. The new plant, to be known as No. 3, will include eight furnaces, gas producers, coal and ash-handling equipment, mixer and stripper buildings, and a covered stock yard. Bids for the foregoing and subsidiary equipment now are being entertained.

Polytechnic Institute of Brooklyn, Brooklyn, N. Y., recently has issued a bulletin on courses given in the evening session at the institute for 1929-1930. The booklet describes fully the various technical courses and degrees which the institute offers.

Nonferrous Metals

Consumption of All Metals Is Unusually Heavy—Good Buying Is Expected to Continue—Prices Are Holding Steady

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
Aug. 7	18.00	18.07½	17.50	47.00	47.75	6.75	6.55	6.80	23.90	8.62½	35.00
Aug. 8	18.00	18.07½	17.50	46.87½	47.62½	6.75	6.55	6.80	23.90	8.62½	35.00
Aug. 9	18.00	18.07½	17.50	46.62½	47.25	6.75	6.55	6.80	23.90	8.62½	35.00
Aug. 12	18.00	18.07½	17.50	46.50	47.12½	6.75	6.55	6.80	23.90	8.70	35.00
Aug. 13	18.00	18.07½	17.50	46.37½	47.00	6.75	6.55	6.80	23.90	8.62½	35.00

NEW YORK, Aug. 13.—Unusually heavy consumption of all nonferrous metals continues. Some letdown has come with the season but consumption is favorable compared with past summers. Moreover, a feeling of confidence pervades the markets that good business will continue. So far as sales are concerned there are confident predictions in many quarters that activity in the late summer will increase materially.

Prices the past week have been steady all through the list.

Brass and copper product business is moderately active for early shipment. Wire mills are doing a good business in heavy sizes, and in fine sizes they are pushed to the limit of capacity to meet demand.

Copper—Domestic and export sales have been made in the past week at unchanged prices. Domestic sales have not been very large but exports have been of average size. July statistics today showed an increase in stocks to the highest level in many months.

Zinc—Prime western sales have been light but the report of the American Zinc institute shows that sales of 12,600 tons last month were larger than in the past few months. On the other hand this total was not up to average, and it is believed by smelters that the increase in stocks last month was accompanied by a decrease in galvanizers' stocks. Such sales as have been made lately have been mostly at 6.80c, East St. Louis. Ore is unchanged at $44 a ton. High grade zinc holds at 8.00c delivered.

Tin—After unusual steadiness, tin went down about ⅝-cent several days ago. Some buying had been done each day prior to the drop, and then large buying was done on the break. The earlier purchases were mostly for nearby positions, but at the lower prices the buying ran as far ahead as next March at 47.75c. On this buying the market recovered a little and then took on a quiet and uncertain appearance again. Stocks of tin here are moderate but in England they are unusually large. The range from spot to December continues about 1 cent.

Aluminum—New business is light but prices are firm and unchanged.—*Daily Metal Trade.*

Quicksilver Strong

New York, Aug. 13.—Quicksilver is strong at $124.60 to $126 a flask.

Coke By-Products

Prices Steady and Unchanged—Supplies Good and Moving Well

New York, Aug 13.—Coke oven by-product prices are steady and unchanged. Business continues generally at a high rate in light oil distillates, but there appears to be some slowing down in new business on benzol. Shipments of this material against contracts are fairly brisk, but the market is not showing the activity of several weeks ago. Prices are well maintained, however, although production remains high. There is more benzol in the spot market. Toluol continues to move steadily against contracts at unchanged prices and the same holds true for commercial xylol and solvent naphtha. The market for the latter is fairly active, including good inquiry. Water white grades are moving well.

Supplies of phenol are still short, although the scarcity does not appear as acute as a month ago. Market for this material finds a broad outlet and bakelite manufacturer are steady buyers. There is little phenol on the spot market.

Naphthalene prices are unchanged with a steady volume of business against a high production. Most business in naphthalene is moving at the lower figure of the price range for both flakes and balls.

More interest is being shown in sulphate of ammonia by the fertilizer industry and contracting is being done at unchanged prices. A fair export demand prevails.

Mill Products

Base price cents per pound f.o.b. mill, except where otherwise specified

SHEETS	
Yellow brass (high)	23.25
Copper, hot rolled	27.75
Lead, full sheets (cut ¼c more)	10.00
Zinc sheet (100-pound base)	$10.25
Zinc strip (100-pound base)	$9.25
Aluminum, flat sheets, up to 10 gage, 3 to 72 inches wide	31.30
SEAMLESS TUBE	
Yellow brass (high)	28.25
Copper	29.25
RODS	
Yellow brass (high, full turnings)	21.25
Naval brass	24.00
WIRE	
Copper	19.87½
Yellow brass (high)	23.75

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	12.00 to 12.50
Chicago	12.00
Cleveland	12.50 to 13.00
HEAVY YELLOW BRASS	
Cleveland	8.50 to 9.00
ZINC	
New York	3.25 to 3.50
Cleveland	3.25 to 3.50
HEAVY COPPER AND WIRE	
New York	14.25 to 14.50
Boston	13.50 to 14.00
Chicago	13.00
Cleveland	14.00 to 14.50
RED BRASS BORINGS	
New York	11.00 to 11.50
YELLOW BRASS TUBING	
Cleveland	8.50 to 9.00
LIGHT COPPER	
New York	12.25 to 12.50
Chicago	12.00
Cleveland	12.50 to 13.00
LIGHT BRASS	
Boston	6.25 to 6.50
Chicago	7.00 to 7.50
Cleveland	6.50 to 7.00
ALUMINUM	
Clippings, Cleveland	17.00 to 17.50
Borings, Cleveland	9.00 to 9.50
Cast, Cleveland	12.50 to 13.00
Cast, Boston	10.00 to 10.50

Secondary Metals

Remelt aluminum No. 12	17.00 to 17.50
Brass ingot, 85-5-5-5	15.75 to 16.00

Coke Oven By-Products

Per Gallon at Producers' Plant in Tank Lots

	Spot
Pure Benzol	$0.23
90 per cent benzol	0.23
Toluol	0.40
Solvent naphtha	0.30
Commercial xylol	0.30

Per Pound at Producers' Plants in 250-Pound Drums

Phenol	0.16 to 0.17

Per Pound at Producers' Plants

Naphthalene flakes	0.05½ to 0.06½
Naphthalene balls	0.06½ to 0.07½

Per 100 Pounds Delivered

Sulphate of ammonia	$2.20 to 2.25

Pittsburgh Valve & Fittings Co., Barberton, O., has taken out a group life insurance contract for $600,000 in the Metropolitan Life Insurance Co. Each employe has $1000 insurance, with permanent disability provision. The company participates in bearing the cost.

Warehouse

Hot Weather Slackens Buying From Jobbers—Recovery Looked For Before Sept. 1—Prices Are Well Observed

EVIDENCING the influence of summer weather, shipments out of warehouse stocks are lower than in June or July in many districts. Jobbers hope for a recovery before the month is out, because mills still are slow in catching up on their deliveries. Prices are firm and unchanged at quoted levels. Sheet sales have subsided in New York but bars and shapes stay up.

New York—Following brisk trading during the early part of the month, jobber demand is somewhat spotty. The flurry in blue annealed sheets has subsided. Bars and shapes furnish the only outstanding buying.

Pittsburgh—Warehouse sales are off moderately from the rate of the preceding two months. Business, however, compares favorably with the corresponding period of preceding years. Building material continues fairly active, although nails are slow. Concrete reinforcing bars are in demand. Prices generally are steady but nails are quotably lower.

Buffalo—Warehouses have experienced a decline in demand, especially for bars, in the past 10 days. Sales of other materials have held up better but the number of daily orders has declined.

Philadelphia—Jobbers report continued good business with unchanged prices. Concrete bars are quoted now at 2.77c to 3.02c instead of 2.75c to 3.10c.

Chicago—Warehouse sales tend to be under the level of July but to exceed last August. The deferred mill delivery situation is expected to benefit jobbers all year. Prices are unchanged and firm.

St. Louis—Distributors of iron and steel from stock report continued irregularity in the demand. The outlet through the building industry is disappointing and collections from this direction are decidedly slow. Public utilities are absorbing heavy tonnages of a variety of materials. Purchasing by the railroads of shop supplies is in fairly good volume.

Howard W. Perrin Dies

Howard W. Perrin, in charge of the M. A. Hanna Co. coal interests at Philadelphia and vice president of the Susquehanna Colleries Co., died Aug. 10 at Burlington, Vt.

Weldon Foundry Co., Wayne, Mich., has changed its name to Enot Foundry Co.

Warehouse Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.00c
Ft. Worth	3.75c
Houston	3.00c
Los Angeles	3.30c
New York†††‡	3.25c
Philadelphia*	2.80c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.15c
Seattle	3.15c
St. Louis	3.15c
St. Paul	3.25c
Tulsa	3.75c to 4.04c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.00c
Ft. Worth	3.75c
New York††	2.80c to 3.24c
Philadelphia*	2.80c
St. Louis	3.15c
Tulsa	3.75c to 4.04c

REINFORCING BARS

Baltimore	3.31c
Boston	3.265c to 3.50c
Buffalo	2.95c
Cincinnati	3.15c
Cleveland	2.25c to 2.44c
Detroit	2.30c to 3.00c
Ft. Worth	3.50c
Houston	3.00c
Los Angeles cl.	2.65c
Los Angeles, lcl.	3.00c
New York	2.90c to 3.30c
Philadelphia	2.77c to 3.02c
Pittsburgh	2.90c to 3.175c
San Francisco cl.	2.00c
San Francisco lcl.	2.25c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.30c to 2.60c

STRUCTURAL SHAPES

Baltimore	3.25c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.10c
Ft. Worth	4.00c
Houston	3.25c
Los Angeles	3.30c
New York†††‡	3.25c to 3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

PLATES

Baltimore	3.25c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-in. and thicker	3.00c
Cleve., 3/16-in.	3.20c
Detroit	3.10c
Detroit, 3/16-in.	3.10c
Ft. Worth	4.00c
Houston	3.00c
Los Angeles	3.30c
New York‡‡	3.30c
Philadelphia*	2.70c
Pittsburgh	3.00c
Portland	3.00c
San Francisco	3.15c
Seattle	3.15c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.75c to 4.14c

NO. 10 BLUE ANNEALED

Baltimore	3.60c
Boston 3/16-in.	3.915c
Buffalo	3.50c
Chicago	3.35c
Cincinnati	3.45c
Cleveland	3.25c
Detroit	3.35c
Ft. Worth	4.50c
Houston	3.90c
Los Angeles	4.00c
New York‡‡	3.70c to 3.90c
Portland	3.75c
Philadelphia*†	3.25c
Pittsburgh**	3.35c to 3.45c
San Francisco	3.80c
Seattle	4.00c
St. Louis	3.45c
St. Paul	3.75c
Tulsa	4.20c to 4.34c

NO. 24 BLACK SHEETS

Baltimore*†	3.75c
Boston	4.85c
Buffalo	4.20c
Chicago	4.05c
Cincinnati	4.05c
Cleveland***	3.75c to 3.90c
Detroit	3.95c
Ft. Worth	4.70c
Los Angeles	4.90c
New York	3.90c to 4.00c
Philadelphia*†	4.10c
Pittsburgh**	3.85c
Portland	4.90c
San Francisco	4.90c
Seattle	5.00c
St. Louis	4.25c
St. Paul	3.89c
Tulsa	4.34c

NO. 24 GALVANIZED SHEETS

Baltimore*†	4.50c
Boston	5.60c
Buffalo	4.70c to 4.85c
Chicago	4.90c
Cincinnati	4.90c
Cleveland***	4.60c to 4.75c
Detroit	4.75c
Ft. Worth	5.50c
Houston	5.40c
Los Angeles	5.30c
New York	4.60c to 4.75c
Philadelphia*†	4.85c
Pittsburgh**	4.85c to 4.95c
Portland	5.50c
San Francisco	5.30c
Seattle	5.50c
St. Louis	5.10c
St. Paul	4.68c
Tulsa	5.10c to 5.35c

BANDS

Baltimore	4.00c
Boston	4.015c to 5.00c
Buffalo	3.65c
Chicago	3.20c
Cincinnati	3.50c
Cleveland	3.25c to 3.65c
Detroit 3/16-in. and lighter	3.30c
Ft. Worth	4.25c
Houston	3.65c
Los Angeles	4.15c
New York‡‡	3.75c
Philadelphia*	3.30c
Pittsburgh	3.25c
Portland	4.00c
San Francisco	3.75c
Seattle	4.00c
St. Paul	3.50c
Tulsa	4.50c to 4.69c

HOOPS

Baltimore	4.00c
Boston	5.50c to 6.00c
Buffalo	4.05c
Chicago	3.75c
Cincinnati	4.05c
Cleveland	3.25c to 3.65c
Detroit, No. 14 and lighter	3.80c
New York‡‡	4.25c
Philadelphia*	3.55c
Pittsburgh	4.25c
Seattle	5.00c
St. Paul	4.00c

COLD FINISHED STEEL

	Rounds, hexagons, squares	Flats, squares
Baltimore (c)	3.50c	(a) 4.00c
Boston	3.55c	4.05c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles (a)	4.50c	.....
New York	3.60c	4.10c
Philadelphia*	3.60c	4.10c
Pittsburgh	3.70c	4.20c
Portland (a)	4.50c	.....
San Fran. (a)	4.25c	.....
Seattle (a)	5.00c	.....
St. Paul (a)	3.85c	.....
Tulsa	4.64c	5.14c

(a) Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500 pound lots	5.30c
Buffalo	5.85c
Chicago (b)	6.10c
Cincinnati	7.15c
Cleveland (b)	5.95c
Detroit	5.80c
New York	5.15c
Philadelphia (c)	5.15c

(b) Net base, straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.

SWEDISH IRON AND STEEL

New York duty paid

Hollow drill steel	13.00c
Iron bars, round	6.10c
Iron bars, flats and squares	6.50c

*Plus quantity differentials. ‡‡Minus quantity differentials. ††Domestic bars. **Less than 25 sheets. *†50 or more bundles. ***Less 0.15c where more than 10 bundles are ordered at once for delivery at one time.

Pacific Coast

Good Volume of Trade Maintained — Much Tonnage Is in Prospect

SUMMER slackness is taking its toll of activity on the coast but an unusual prospective tonnage promises good fall business. Current buying is sufficient to give more activity than usual for midsummer, however. Prices are firm and there is no tendency to weakness. All classes of products share in the general activity in pending projects in the Pacific Northwest.

Seattle, Aug. 8.—Awards involving iron and steel products were normal in the Pacific Northwest this week but the feature is the large tonnage pending. This involves considerable quantities of plates, structurals and reinforcing materials. Within the next 30 days several large contracts will be placed.

The market continues steady and firm, prices unchanged. Wholesale jobbing houses report a satisfactory turnover, July having shown large totals.

Bars, Plates and Shapes

Local mills report unchanged operations, recent orders for plates, shapes and bars having been in carlots.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	25.00 to 26.00

*C.i.f. duty paid.

Business is fair but shows a decline from early summer. Reinforcing projects pending include 1155 tons for the Garfield street bridge, Seattle, 290 tons for the Tacoma cold storage terminal and 125 tons for lock gates for the Long-Bell Lumber Co., Longview. Mill prices of merchant bars are unchanged at 2.35c, reinforcing at 2.30c. New projects include a concrete bridge over the Nehalem river, Oregon, bids Aug. 24.

The only award involving plates went to the Thompson Mfg. Co. at $11,607 for siphons for the Vale, Oreg., reclamation project. The steel tonnage is unstated. Bremerton, Wash., will open bids this week for its new water system, reported to involve about 3500 tons of steel pipe. Tacoma is also receiving bids this week for surge tanks and penstock of the Lake Cushman penstock, calling for about 2500 tons of plates. Bids for the Everett water system improvement will be opened late this month. Mill prices of plates are firm at 2.35c in this territory.

Contract for constructing the Capilano river bridge, was awarded by the British Columbia public works department to the Western Canada Structural Steel & Bridge Co. and on a bid of $46,074. The tonnage totals about 350 tons of structurals. Tacoma has opened bids for repairs to the East Eleventh street bridge, recently damaged by fire, but the award is pending. About 2400 tons of structurals are involved. Isaacson Iron Works is furnishing 50 tons for a bridge in Clallam county, Washington. Bureau of public roads, Portland, will open bids Aug. 16 for constructing three bridges in Lewis county, Wash., involving 61 tons of structurals and 45 tons of reinforcing steel.

Finished Materials

Warehouse business was better than normal during July, according to reports of wholesale jobbers. Mill business continues slack. August trade is opening up actively and the jobbing market has a strong undertone. Sheets show little improvement but demand for bars and shapes is strong, also for light plates due to repair work and light tank and boiler construction. Wholesale prices are unchanged and firm here.

Bethlehem Steel Co. has the contract for furnishing three special track layouts for the Seattle municipal street railway on a bid of $24,303, involving 100 tons of specially treated steel.

Puget Sound Bridge & Dredging Co. has the contract at $65,100 for constructing the Alki avenue seawall for Seattle. This project calls for about 1000 tons of sheet steel piling, the contract for which is pending.

Pipe Demands Active

S. A. Moceri, Seattle, is low bidder for furnishing and laying water mains in the McKinley hill district, Tacoma, involving 515 tons of pipe, alternate bids being submitted for centrifugal monocast and sand cast. The subcontract for the pipe is pending. Sunset Heights district, Bellingham, is planning expenditure of $47,000 for a water system to include a 50,000-gallon steel tank, hydrants and 17,400 feet of cast iron pipe.

Bar Tonnages Placed

San Francisco, Aug. 10.—(*By Air Mail*)—Movement of iron and steel products on the Pacific Coast has slackened somewhat during the past two or three weeks and awards and inquiries have involved a comparatively small tonnage. Important lettings included 600 tons of concrete bars for the Shell Oil building, San Francisco, and 400 tons for a warehouse for the American Can Co., San Francisco, both booked by the Soule Steel Co. The price structure continues fairly firm.

Pig Iron and Coke

Foundry activity has shown little improvement and as a result sales and inquiries continue to call for relatively small tonnages. No change in prices is noted.

Bars, Plates and Shapes

In addition to the two reinforcing bar tonnages noted above, W. S. Wetenhall Co. took 175 tons for an abattoir in San Francisco. While the number of large awards is limited, jobbers report numerous small projects of 20 to 60 tons. Awards this week aggregate 1598 tons. Among new inquiries were 150 tons for a theater at Stockton, Calif., and 630 tons for a factory in San Francisco. Prices on out-of-stock material in the bay district continue at 2.20c, base for carload lots and 2.60c, for smaller tonnages. Los Angeles prices are $2 a ton higher.

Shape awards fell considerably below the weekly average of the year, being 638 tons as compared with the weekly average of 3806 tons this year and 2801 tons in 1928. Brombacher Iron Works took 100 tons for an addition to the Soldier's Home at Sawtelle, Calif., and 257 tons were placed for a reclamation project at Boise, Idaho. Plain structural shapes are firm at 2.35c, c.i.f.

Other Finished Material

Cast iron pipe awards aggregated 294 tons, compared with the average weekly total of 1841 tons for this year. The only award of importance went to Griffith Co. and involved 217 tons for the improvement of Atlantic street, Long Beach, Calif. San Diego will open bids Aug. 12 for 144 tons and 201 tons for the improvement of Plata avenue and El Prado avenue, respectively. Anaheim will open bids on Aug. 22 for 377 tons of 4 to 8 inch Class B pipe.

Six Months Iron Output Establishes Record

Production of pig iron and ferroalloys in the United States during the first half of 1929 was 21,820,060 gross tons, according to official statistics compiled by the American Iron and Steel institute, thereby constituting a first-half record. The nearest approximation to this figure was 21,016,475 tons in the first six months of 1923. Compared with the 18,686,412-ton output of the first half of 1928, the current year registers an increase of 16.8 per cent.

As shown in the table on the opposite page, the total was composed of 21,404,654 tons of pig iron and 415,406 tons of ferroalloys. Of the pig iron, 21,337,150 tons was coke iron and 67,504 tons was charcoal iron.

Of the total pig iron and ferroalloys made during 1929 first half, 4,838,809 tons was made for sale and 16,981,251 tons for the makers own use. The proportion of merchant iron was 22.1 per cent, against 21.8 per cent last year and 32.1 per cent in 1927.

First Half Pig Iron a Record

Compiled by American Iron and Steel Institute

HALF-YEARLY PRODUCTION OF PIG IRON BY STATES.*

States.	Blast furnaces. (a) In blast Dec. 31, 1928	June 30, 1929. In	Out	Total	Production of pig iron not including ferro-alloys—Gross tons. First half of 1928.	Second half of 1928.	First half of 1929.
Massachusetts	1	1	0	1	1,213,685	1,153,205	1,444,109
New York	12	16	7	23			
New Jersey	0	0	2	2			
Pennsylvania	63	71	24	95	5,762,007	6,290,398	7,200,722
Maryland	5	6	0	6			
Virginia	0	0	9	9			
West Virginia	3	3	1	4			
Kentucky	2	2	1	3	938,864	1,043,869	1,039,524
Mississippi	0	0	1	1			
Texas	0	0	1	1			
Tennessee	1	3	4	7			
Alabama	18	17	14	31	1,252,229	1,265,256	1,411,933
Ohio	43	45	12	57	4,296,980	4,720,045	4,972,419
Illinois	17	19	6	25	2,042,079	1,900,333	2,265,105
Indiana	14	16	2	18			
Michigan	8	8	2	10	2,345,888	2,237,177	2,582,253
Wisconsin	0	0	2	2			
Minnesota	2	3	0	3			
Missouri	0	0	2	2	460,609	479,024	488,589
Colorado	3	2	3	5			
Utah	1	1	0	1			
Total	193	213	93	306	18,312,341	19,089,307	21,404,654

(a) Completed and rebuilding pig iron furnaces.

HALF-YEARLY PRODUCTION OF COKE PIG IRON BY STATES.*

Massachusetts	1	1	0	1	1,213,685	1,153,205	1,444,109
New York	12	16	7	23			
New Jersey	0	0	2	2			
Pennsylvania	63	71	24	95	5,762,007	6,290,398	7,200,722
Maryland	5	6	0	6			
Virginia	0	0	9	9			
West Virginia	3	3	1	4	930,246	1,033,735	1,028,248
Kentucky	2	2	1	3			
Tennessee	1	2	4	6			
Texas	0	0	1	1			
Alabama	18	17	14	31	1,252,229	1,265,256	1,411,933
Ohio	43	45	12	57	4,296,980	4,720,045	4,972,419
Illinois	17	19	6	25	2,042,079	1,900,333	2,265,105
Indiana	14	16	2	18	2,275,403	2,183,454	2,526,025
Michigan	4	4	0	4			
Wisconsin	0	0	2	2			
Minnesota	2	3	0	3			
Missouri	0	0	2	2	460,609	479,024	488,589
Colorado	3	2	3	5			
Utah	1	1	0	1			
Total	189	208	90	298	18,233,238	19,025,450	21,337,150

HALF-YEARLY PRODUCTION OF CHARCOAL PIG IRON BY STATES.*

Tennessee	0	1	0	1	79,103	63,857	67,504
Mississippi	0	0	1	1			
Michigan	4	4	2	6			
Total	4	5	3	8	79,103	63,857	67,504

HALF-YEARLY PRODUCTION OF ALL KINDS OF FERRO-ALLOYS BY STATES.†

New York	1	0	0	0	93,192	102,633	112,999
New Jersey	0	0	0	0			
Pennsylvania	5	8	4	12	185,021	185,176	215,709
Maryland	0	0	0	0			
Virginia	1	1	0	1			
West Virginia	0	0	0	0	29,407	43,019	37,455
Tennessee	0	1	1	2			
Alabama	1	0	0	0			
Ohio	2	2	1	3			
Iowa	0	0	0	0	66,451	49,167	49,243
Colorado	0	0	0	0			
Total	10	‡12	6	‖18	374,071	379,995	415,406

HALF-YEARLY PRODUCTION OF PIG IRON AND FERRO-ALLOYS ACCORDING TO FUEL USED.

Coke pig iron	189	208	90	298	18,233,238	19,025,450	21,337,150
Charcoal pig iron	4	5	3	8	79,103	63,857	67,504
Total pig iron	193	213	93	306	18,312,341	19,089,307	21,404,654
Total ferro-alloys	10	12	6	18	†374,071	†379,995	†415,406
Grand total	203	225	99	324	18,686,412	19,469,302	21,820,060

* Does not include the production of ferro-manganese, spiegeleisen, ferro-silicon, or other ferro-alloys.

† Includes ferro-manganese, spiegeleisen, ferro-silicon, and other ferro-alloys made in blast furnaces or in electric furnaces.

‡ During the first half of 1929 there were 18 blast furnaces which made ferro-alloys only or ferro-alloys and pig iron.

‖ Blast furnaces only; electric furnaces not included.

HALF-YEARLY PRODUCTION OF BASIC PIG IRON.

States.	First half of 1928.	Second half of 1928.	First half of 1929.
Massachusetts, New York	518,625	632,610	684,597
Pennsylvania—Allegheny County	1,787,345	1,840,625	2,183,721
" Other counties	1,855,362	2,240,235	2,562,927
Maryland, West Va., Kentucky, Ala.	1,141,242	1,236,267	1,402,065
Ohio	2,170,385	2,550,412	2,636,063
Indiana, Illinois	2,781,455	2,394,468	3,015,263
Michigan, Minnesota, Colorado, Utah	461,574	513,805	500,228
Total Gross tons.	10,715,988	11,408,422	12,984,864

HALF-YEARLY PRODUCTION OF BESSEMER AND LOW-PHOSPHORUS PIG IRON.

Pennsylvania	1,784,783	1,826,628	2,032,404
New York, Md., W. Va., Tenn., Ala.	497,099	316,863	482,965
Ohio	1,395,124	1,497,362	1,536,162
Indiana, Illinois	780,748	915,240	892,926
Total Gross tons.	4,457,754	4,556,093	4,944,457
Including low-phosphorus pig iron	160,681	76,125	174,593

HALF-YEARLY PRODUCTION OF FOUNDRY PIG IRON.

Massachusetts, New York	435,834	320,003	297,112
Pennsylvania	247,567	316,941	304,907
Virginia, Kentucky, Tennessee, Ala.	675,140	813,671	714,231
Ohio	285,049	247,180	333,555
Illinois	220,730	226,128	234,078
Michigan	175,303	115,017	164,111
Wisconsin, Minnesota, Colorado, Utah	65,775	65,452	63,176
Total Gross tons.	2,105,398	2,104,392	2,111,170

HALF-YEARLY PRODUCTION OF MALLEABLE PIG IRON.

Massachusetts, New York	106,426	105,701	305,160
Pennsylvania	32,757	53,356	55,117
Ohio	438,420	411,963	454,048
Kentucky, Illinois, Michigan, Minn.	368,996	405,351	459,975
Total Gross tons.	946,599	976,371	1,274,300

HALF-YEARLY PRODUCTION OF FORGE PIG IRON.

Pennsylvania	51,668	12,383	59,369
Virginia, Alabama, Ohio	9,257	15,054	10,802
Total Gross tons.	60,925	27,437	70,171

HALF-YEARLY PRODUCTION OF MISCELLANEOUS GRADES OF PIG IRON AND DIRECT CASTINGS.

New York, Pennsylvania	2,879	947	2,432
Alabama	2,295	4,266	878
Ohio	6,507	7,441	8,069
Indiana, Illinois, Michigan	13,996	3,938	8,313
Total Gross tons.	25,677	16,592	19,692

HALF-YEARLY PRODUCTION OF FERRO-ALLOYS BY KINDS.

Ferro-manganese and spiegeleisen	205,073	214,140	232,769
Ferro-silicon	152,389	151,206	160,786
Ferro-phos. and all other ferro-alloys	16,609	14,649	21,851
Total Gross tons.	374,071	379,995	415,406

PIG IRON AND FERRO-ALLOYS MADE FOR SALE OR FOR USE OF MAKERS IN THE FIRST SIX MONTHS OF 1929.

Pig iron and ferro-alloys.	For sale.	For maker's use.	Total. Gross tons.
Pig iron:			
Basic	1,155,923	11,828,941	12,984,864
Bessemer and low-phosphorus	239,976	4,704,481	4,944,457
Foundry	1,958,718	152,452	2,111,170
Malleable	1,153,818	120,482	1,274,300
Forge or mill	38,158	32,013	70,171
White and mottled, direct castings, etc.	872	18,820	19,692
Total pig iron Gross tons.	4,547,465	16,857,189	21,404,654
Ferro-alloys:			
Ferro-manganese and spiegeleisen	108,707	124,062	232,769
Ferro-silicon	160,786	.....	160,786
All other ferro-alloys	21,851	.....	21,851
Total ferro-alloys Gross tons.	291,344	124,062	415,406
Total pig iron and ferro-alloys Gross tons.	4,838,809	16,981,251	21,820,060

Plant Inspection Trips Are Arranged

Many interesting plant inspection trips have been arranged by the American Society for Steel Treating for those attending the National Metal congress and exposition in Cleveland, Sept. 9-13. The schedule provides for a majority of the plant inspections in the morning so that the afternoons will be free for visitors to attend the exposition in Public auditorium. Inspection trips have been planned to the following organizations: National Tool Co.; Lamson & Sessions Co.; Otis Steel Co.; Case School of Applied Science; Industrial Brownhoist Corp.; Columbia Axle Co.; Lakeside Steel Improvement Co.; White Motor Co.; Warner & Swasey Co.; Burdett Oxygen Co. of Cleveland; Joseph T. Ryerson & Sons Inc.; Lincoln Electric Co.; Vlchek Tool Co.; Gears & Forgings Inc.; Eaton Axle & Spring Co., bumper division; Ferro Machine & Foundry Co.; National Malleable & Steel Castings Co.; American Steel & Wire Co., Cuyahoga works; Nela Park; National Acme Co.; Hupp Motor Car Corp.; Great Lakes Aircraft Corp.; and Cleveland Tractor Co.

Ohio River Improvement To Be Celebrated

Completion of the 9-foot stage on all of the Ohio river will be celebrated by a week of ceremonies, including a river pageant, beginning at Pittsburgh, Oct. 12, and concluding at Cairo, Ill., Oct. 18. Plans for the celebration are sponsored by the Ohio Valley Improvement association which has advocated the canalization of the Ohio river for the past 35 years. The federal government which has expended more than $125,000,000 to regulate the Ohio river with a system of 53 locks and dams will participate. President Hoover is scheduled to unveil and dedicate the Ohio river monument at Eden park, Cincinnati.

Operating Rates

Chicago Between 95-98, Pittsburgh Unchanged, Valley Improves

Chicago—Steelworks operations hold at 95 to 98 per cent. Steelworks blast furnaces are not in need of repairs, despite their recent heavy operations, but some repairs are being made to merchant stacks. Rail mills are settling to a 75 per cent rate, this being assured into the fourth quarter. Hot weather is depressing sheet and strip mill operations mildly.

Buffalo—Operations in steelmaking show a decline of two units this week, there being 31 of 37 open hearths in the district now making steel. Necessary repairs rather than lack of demand for billets is responsible for the change, however. All major finishing mills are operating on double turn with full crews.

Pittsburgh—No marked readjustment has been made in ingot operations, which hold around 90 to 95 per cent. Some of the smaller mills are running below this figure. Finishing operations generally are unchanged. Sheet mills continue this week at 95 per cent, with tin plate production off a few points at slightly below 90 per cent. Strip mills hold at 90 to 95 per cent. Wire mills are operating at 60 to 65 per cent. Pipe mill schedules are unchanged at 65 to 75 per cent for seamless and 60 to 65 for welded.

Youngstown, O.—Operating rates have improved this week in this district to 88 per cent, compared with 86 per cent last week. This raises the summer schedule rate of operations to about 15 per cent higher than a year ago, and even this is expected to continue to higher levels in September. One additional open hearth was added to the active list this week by independents, making 45 units melting out of 51. Another pipe mill unit also has been added to the list of those active this week, making 14 active out of 21 welded, seamless and electric-welded mills. Strip mills and independent tin plate mills continue at capacity. Independent bar mills are at 75 per cent and Carnegie Steel Co. units at 90 per cent, both unchanged. Independent sheet mills have 105 units active this week out of 120, unchanged from last week. The Girard puddle mill is 60 per cent active, and its finishing department is at 100 per cent.

Pig Iron

(*Concluded from Page* 411)

mer business is indicated by inquiries, including one for 2600 tons, another for 1500 tons and a third of 1000 tons for delivery to melters in nearby districts. Lake furnace prices are steady. Cleveland makers hold to $18.50, base, furnace, for outside shipment and $19, base, for local consumption.

Philadelphia, Aug. 13.—Moderate buying of pig iron is noted here, the largest sale in the past week being 2000 tons to a consumer in this district. Eastern Pennsylvania foundry iron shows resistance to further price cutting and $21, base, furnace, is held firmly. The past week's sales included two lots of basic and several hundred tons each which will be shipped to this district by rail and water from Birmingham. Steps now are being taken to eliminate the charge of 45 cents a ton for loading iron from vessels to cars on docks here, so that $5.25 will represent the full rail and water rate from Birmingham to cars on Philadelphia docks.

St. Louis, Aug. 13.—Purchasing of pig iron picked up during the past several days, sales totaling above 30,000 tons. Of this amount 25,000 tons was basic iron sold by the leading local producer to steelmakers in this district. A jobbing foundry in this district took 1000 tons of foundry iron. Recent sales of southern iron have reached a considerable total, a number of important users having covered their needs on the price decline. The undertone of the market is firmer. Southern blast furnaces have placed a considerable part of their surplus and are less eager to sell. Sales of No. 2 southern foundry iron figure back to $12.50, Birmingham. Quotations on northern iron remain nominally unchanged, though concessions are being granted.

Birmingham, Ala., Aug. 13.—Numerous sales of pig iron are being made in small lots, but the aggregate is not large. Shipment of iron to the Atlantic coast territories is not as large as was expected to result from the reduction in freight rates. Consumption of iron in the local district shows no improvement; in fact, there is a little recession in some directions, cast iron pressure pipe production being less active. No. 2 foundry iron still is $14.50, Birmingham, for local delivery and $13.50 to $14 in competitive districts.

Toronto, Ont., Aug. 13.—Canadian pig iron market is stronger. Blast furnace representatives look for a brisk market toward the end of this month. Prices are unchanged.

Chicago, Aug. 13.—Pig iron shipments continue in excess of July and of last August by a wide margin. Sales both spot and for the remainder of the year are fairly brisk. No. 2 foundry and malleable are held firmly at $20, Chicago furnace. One representative southern producer is quoting $13.50, base, Birmingham, for carloads and $13 for lots up to 1000 tons. Another southern representative is shading these levels. Small scattered sales of southern iron are made in Indiana and Michigan, but sales of southern iron in southern Illinois and Indiana are heavy and disturbing St. Louis producers more than those in the Chicago area. One By-Product Coke Corp. stack was blown out Monday for repairs requiring two weeks time. One Iroquois stack now being repaired will be relighted Sept. 1.

Sheet Orders Are High

(*Concluded from Page* 417)

used chiefly for transformers for radios, October and November datings prevail. Demand too is heavy for vitreous enameling stock and other grades utilized in electrical refrigerator manufacture. An inquiry is current here for 1500 tons of black sheets from a barrel manufacturer. He offers to pay 2.75c, but most makers adhere firmly to 2.85c, Pittsburgh. One 300-ton order placed recently carried a 2.95c figure. Galvanized generally is held at 3.60c, but 3.50c can occasionally be uncovered on attractive rollings. Full finished demand varies according to the state of the automobile manufacturer; some are going ahead on new models while others are curtailing production on present models. Announcements are not yet forthcoming on fourth quarter prices and where that period is entered by deliveries, orders are in the "hold over" file for prices to be named later.

Here and There in Industry

Timely Information Which Records Developments in Various Lines of Productive Enterprise

MICHIANA PRODUCTS CORP., Michigan City, Ind., recently organized, has taken over the Chrobaltic Tool Co. and the Sheet Steel Products Co., both of Michigan City, and will continue both, with enlarged facilities. O. M. Carry is president, with offices in Chicago, and W. B. Sullivan is vice president and general manager, with offices at Michigan City.

* * *

ECLIPSE INTERCHANGEABLE CENTERBORE CO., Detroit, has changed its name to Eclipse Centerbore Co.

* * *

DOEHLER DIE CASTING CO., Batavia, N. Y., is completing construction of an addition 75 x 111 feet to increase its metal mold department.

* * *

FALK MILL SUPPLY CO., machinery dealer, Rochester, N. Y., has bought the plant and equipment of the Climax Locomotive Works, Corry, Pa.

* * *

CAPITOL STEEL & IRON CO., Oklahoma City, Okla., is enlarging its plant to include its present bar fabricating plant and 1000-ton capacity for structural steel fabricating.

* * *

LUNTZ IRON & STEEL CO., Canton, O., has opened a branch office at 320 Citizens National Bank building, Kokomo, Ind., in charge of F. I. Kilcline. The company does a general scrap business.

* * *

MONTERREY IRON & STEEL CO., Monterrey, Nuevo Leon, Mexico, has completed an addition and is installing equipment for the manufacture of metal wheels for railroad, street railway and mine cars.

* * *

AMERICAN MACHINE SHOP INSTITUTE, membership restricted to owners and managers of machine shops and machinery manufacturing plants, is being organized by William E. Dunn Jr., Georgia Savings Bank building, Atlanta, Ga. For several years he has been executive secretary of the Southern Metal Trades association. The purpose of the organization will be to uphold the open-shop plan in that branch of industry.

* * *

UNION CHAIN & MFG. CO., Sandusky, O., recently merged with the American High Speed Chain Co., Indianapolis, has appointed Alan G. Cary of Alan G. Cary Co., 204 Endicott building, St. Paul, its representative in St. Paul and Minneapolis.

* * *

INGRAM MFG. CO., Baltimore, has bought a plant at Warrensville, N. C., and is moving its operations there. The company manufactures an attachment for use on automobile pumps. Its new plant will give capacity for 3000 per day.

* * *

ST. MARYS FOUNDRY CO., St. Marys, O., has bought the building and grounds of the Boos Oil Engine Co., adjoining its plant. It will be used for future expansion of the purchasing company. The building contains 20,000 square feet of floor space.

* * *

STANDARD LOCOMOTIVE EQUIPMENT CO., recently organized at Toledo, O., has bought a site 133 x 213 feet and will start immediately to build the first unit, which will cover half the site. It is planned to build the second unit next spring.

* * *

TOLEDO FOUNDRY & MACHINE CO., Toledo, O., has started electrifying its entire plant. The change is planned to be complete in 30 days. The plant has been operated by steam power from its founding in 1878. W. J. Wuerfel is secretary and treasurer.

* * *

AMERICAN HEAT ECONOMY BUREAU INC., Pittsburgh, has been awarded the contract for 16 stoves for the Lackawanna plant of the Bethlehem Steel Co. The American company also has made arrangements with the Russian government for equipping stoves for one furnace with Steinbart burners.

* * *

UNIVERSAL POWER SHOVEL CO., Detroit, is to be removed to West Allis, a suburb of Milwaukee, by the Unit Corp. of America, which bought it a year ago. A new plant 100 x 225 feet has been erected for its occupancy. The company's product consists of excavators, gears, clutches and other devices.

* * *

CHARLES C. STEWARD MACHINE CO., Birmingham, Ala., machinist and engineer, has expanded its facilities to cover the entire southern states, enlarging departments devoted to elevating, conveying, screening and power transmission. W. E. Harris, formerly with the Stephens-Adamson Mfg. Co., Birmingham, is in charge of these departments.

* * *

UNIHEART UNIVERSAL TOOL CO., Muscle Shoals, Ala., recently incorporated, has obtained a plant and will start production of a tool holder and other metal products. Metalworking equipment has been installed. Arthur T. Stark, Muscle Shoals, is president and Robert H. Visger, Chicago, is secretary and treasurer. Sales headquarters are in Chicago.

* * *

TRANSUE & WILLIAMS STEEL FORGING CORP., Alliance, O., is making changes in its equipment to diversify its product to insure more regular operation than could be done by dependence on automotive demand. An electric furnace for nitriding and heat treating has been installed and chemical and metallurgical laboratory added. A new die room is being constructed also as part of the expansion program.

* * *

GENERAL BRONZE CO., 3212 Smallman street, Pittsburgh, which early this year completed extensive additions to its plants, has just made a large extension to its machine shop capacity through the installation of machinery, including milling machines, boring mill, drill press, lathe and grinding machine. The company has contracted for a patented centrifugal molding machine, to be installed during the next four weeks. Improved service to buyers of castings will be effected through this equipment and through the doubling of melting capacity. Additional furnace capacity will be

completed within the next two weeks. The company produces copper, bronze and brass castings.

* * *

DETROIT STEEL PRODUCTS CO., Detroit, has moved its Buffalo office from the Hurst building to 818 Stock Exchange building.

* * *

NATROY STEEL CORP. is the new name of the former Steel Service & Supply Co., Buffalo. Its office and warehouse are at 940 Seneca street.

* * *

JONES & LAUGHLIN STEEL CORP., Pittsburgh, has moved its Milwaukee sales office to 1410 Bankers building, East Wisconsin avenue and East Water street.

* * *

M. C. SUSSMAN IRON & METAL CO., Terre Haute, Ind., has been granted a building permit for a brick building at First and Cherry streets, 50 x 100 feet.

* * *

BRECKENRIDGE PIPE YARD, Breckenridge, Tex., has been organized to deal in pipe for oil fields. W. G. Hellinghausen, C. D. Dofflemeyer and E. V. Green comprise the organization.

* * *

CONTINENTAL BRAKE SHOE & EQUIPMENT CO., New York, has opened district offices at 1911 Terminal Tower building, Cleveland, in charge of J. Paul Zenz, vice president and director of the company.

* * *

INTERNATIONAL DERRICK & EQUIPMENT CO., Columbus, O., has acquired Boykin Machinery & Supply Co., Beaumont, Tex., and latter's plant will be operated as a unit of International Derrick & Equipment Co., under supervision of the Houston office.

* * *

MONTICELLO MFG. CO., Monticello, Ind., recently incorporated, has negotiated for purchase of a plant and equipment at Monticello, Additional equipment will be needed. The company will manufacture wire and metal display fixtures and special fixtures to order.

* * *

STANDARD STEEL PROPELLER CO., Pittsburgh, has been merged with the United Aircraft and Transport Corp., New York. The basis of exchange of stock will be one share of United for two and one-half shares of Standard common. The propeller company now is enlarging its plant at Homestead, Pa.

* * *

AUTO SPECIALTIES MFG. CO., St. Joseph, Mich., has plans under way for expansion that will double its plant, bringing 12 acres under roof. It is planned to melt 350 tons of iron each 24 hours. Provision will be made for two additional electric furnaces and an ultimate capacity of 600 tons of iron per day. Its product is principally malleable castings.

* * *

MYSTIC IRON WORKS has retained Freyn Engineering Co. as consulting engineers in connection with work contemplated at its plant near Boston. Eastern Rolling Mill Co. has purchased another Freyn-design electric roll heater from Freyn Engineering Co. This makes a total of 19 roll heaters of this design used by this company.

* * *

PITTSBURGH FORGINGS CO., Pittsburgh, and the Riverside Forge & Machine Co., Jackson, Mich., will consolidate on a share-for-share stock exchange basis, subject to the approval of Riverside stockholders at a meeting Aug. 28. Edwin Hodge Jr., president of the Pittsburgh company, has been named president of the Riverside company, succeeding G. H. Wilkins, who becomes treasurer.

* * *

CRUCIBLE STEEL CO. OF AMERICA and Halcomb Steel Co., Syracuse, N. Y., have bought a site 156 x 180 feet on East Fifty-fifth street, Cleveland, and will build a 2-story warehouse and office building containing 30,000 square feet of floor space. Present offices of the Crucible Co. at 712 Lakeside avenue and of the Halcomb Co., 1274 Ontario street, will be vacated when the new offices are occupied.

* * *

PITTSBURGH STEEL FOUNDRY CORP., Glassport, Pa., has announced that rights will be issued to stockholders immediately after the special meeting Sept. 30. Common stockholders will be offered the right to purchase one new share at $10 per share for each share held, payable Oct. 15. Stock of record Sept. 30 will participate. The Pittsburgh company recently acquired the Sharon Foundry Co., Sharon, Pa.

Ludlum Steel Adds To Alloy Facilities

New York, Aug. 13.—Ludlum Steel Co. has completed a plant at Dunkirk, N. Y., for drawing fine wire from Nirosta steel. The plant now is in test operation. The company also has completed and has in test operation a plant for the manufacture of tungsten carbide cutting tools which will be marketed under the trade name Straussmetal. A new building equipped with new automatic annealing furnaces for the heat treatment of alloy steels is near completion and work has been started on an addition to its office building at Watervliet.

Report Tariff Bill To Senate Sept. 4

Washington, Aug. 13.—The senate finance committee has definitely decided that the tariff bill will be reported to the senate Sept. 4. This is in accord with repeated statements to the effect that the committee could not possibly have the bill ready for the senate when it convenes Aug. 19.

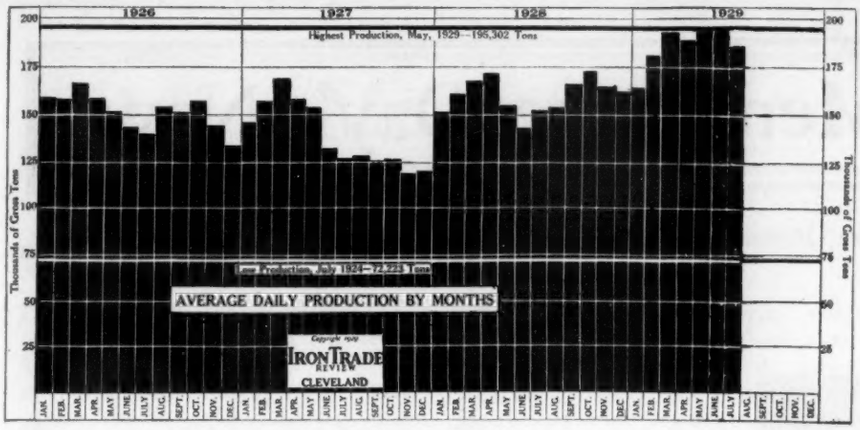
The present arrangement provides for the meeting of the senate Aug. 19, which is necessary because of the joint congressional resolution passed on this subject. There is, however, a gentlemen's agreement that the senate will take a three-day recess until Sept. 4 and that no business will be transacted between Aug. 19 and Sept. 4.

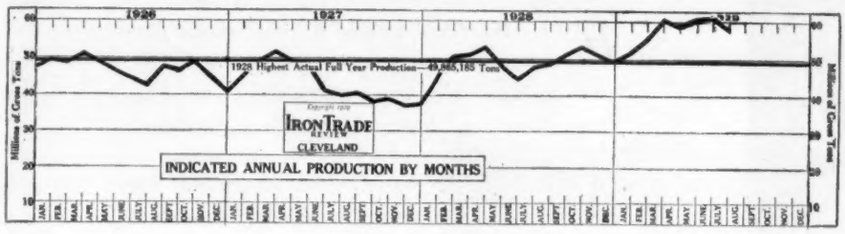
It is probably quite generally known that the Democratic members of the finance committee do not sit with the majority members while the tariff bill is being rewritten. For that reason it has been agreed that Aug. 19 the Republican members of the committee will turn over to the Democratic members the commodity sections of the bill which will be completed at that time so that they can study changes made before it comes up for final vote in the committee. In the meantime Republican members will continue with the administrative sections and have this ready for the Democratic members before the bill is finally reported Sept. 4.

During the past week the committee reduced the rates on passenger automobiles from 25 to 10 per cent. It was also decided to reduce the 25 per cent tariff on trucks costing less than $1000 to 10 per cent, but to keep the higher rate on those costing more and upon buses carrying ten or more passengers.

Los Angeles Trade Good

In keeping with the national trend, business and industry in Los Angeles remains especially active for midsummer. Building permits in Los Angeles for July were somewhat less in value and number than in July, 1928, but the 7-month period is 2 per cent ahead of 1928 in comparison with an average national decline of about 10 per cent, states the Los Angeles chamber of commerce. The chamber's index of employment in July was 103.3 against 98.7 last July. Bank clearings in July were 7 per cent larger than a year ago.





July Ingots Down Slightly

OPEN hearth and bessemer steel ingot production in July was at the rate of 186,769 gross tons daily, a slight reduction from the 195,255-ton rate of June and only 4.2 per cent below the alltime daily record rate of 195,302 tons, established in May. For July, however, this daily rate of 186,769 tons was a new high record. The nearest approach was the 152,224 tons made daily last July.

For both bessemer and open-hearth ingots, the total output of July was 4,838,083 tons, compared with 4,881,370 tons in June and 3,805,598 tons in July, 1928. In only four months in history has a greater tonnage been made than in July. The seven-month total, at 33,805,267 tons, is also a record for the period, exceeding the nearest approach—the 28,603,671 tons of the opening seven months of 1928—by the wide margin of 5,201,596 tons.

Based upon an annual ingot capacity of 60,990,810 tons, steelworks in July were operating at 94.88 per cent of capacity, against 99.56 per cent in June and 80.75 per cent last July. The average operating rate for the first seven months stands at 95.24 per cent. If the rate of production of July were maintained, the 1929 total would be 57,871,191 tons, compared with the actual yearly record total of 49,865,185 tons in 1928.

The American Iron and Steel institute's compilation for July shows an actual increase in bessemer steel production over June but a decline in the open hearth total despite the longer month.

Steel Ingot Production—1928-1929

94.51 Per Cent of Industry Reporting

Gross Tons

1928	Open-hearth	Bessemer	Monthly output companies reporting	Calculated monthly output all companies	Number of working days	Approximate daily output all companies	Per cent of operation
Jan.	3,273,294	498,691	3,771,985	3,990,902	26	153,496	81.42
Feb.	3,300,407	521,250	3,821,657	4,043,457	25	161,738	85.80
March	3,692,648	567,330	4,259,978	4,507,217	27	166,934	88.55
April	3,505,104	564,110	4,069,214	4,305,382	25	172,215	91.35
May	3,394,301	582,128	3,976,429	4,207,212	27	155,823	82.66
June	3,010,341	528,193	3,538,534	3,743,903	26	143,996	76.38
July	3,068,257	528,588	3,596,845	3,805,598	25	152,224	80.75
7 mos.	23,244,352	3,790,290	27,034,642	28,603,671	181	158,031	83.83
Aug.	3,379,625	569,771	3,949,396	4,178,610	27	154,763	82.10
Sept.	3,375,654	544,710	3,920,364	4,147,893	25	165,916	88.01
Oct.	3,795,800	599,098	4,394,898	4,649,968	27	172,221	91.36
Nov.	3,442,112	590,669	4,032,781	4,266,835	26	164,109	87.05
Dec.	3,301,114	496,679	3,797,793	4,018,208	25	160,728	85.26
Total	40,538,657	6,501,217	47,129,874	49,865,185	311	160,338	85.05
1929							
Jan.	3,694,218	549,616	4,243,834	4,490,354	27	166,309	84.80
Feb.	3,599,224	489,279	4,088,503	4,326,000	24	180,250	91.91
March	4,183,869	596,691	4,780,560	5,058,258	26	194,548	99.20
April	4,026,576	640,351	4,666,927	4,938,025	26	189,924	96.84
May	4,276,186	707,484	4,983,670	5,273,167	27	195,302	99.59
June	3,990,798	622,585	4,613,383	4,881,370	25	195,255	99.56
July	3,922,532	649,950	4,572,482	4,838,098	26	186,080	94.88
7 mos.	27,693,403	4,255,956	31,949,359	33,805,267	181	186,769	95.24

Figures exclude crucible and electric ingots. Operation percentages for 1928 are based on an annual open-hearth and bessemer steel ingot capacity of 58,627,910 tons as of Dec. 31, 1927; 1929 percentages based on capacity of 60,990,810 tons as of Dec. 31, 1928.

June Employment Gains in Metal Industry

Washington, Aug. 13.—June employment in the iron and steel and allied industries increased over that of May in most instances, while payrolls in several industries decreased.

According to reports received by the bureau of labor statistics, department of labor, from 206 iron and steel mills their May employment totaled 286,103, increasing in June to 286,815, an increase of 0.2 per cent. Payrolls in these same mills, on the other hand, decreased from $9,590,202 in May to $9,415,266 in June a decrease of 1.8 per cent.

Reports were received from 44 cast iron pipe factories giving their May employment as 12,069, increasing in June to 12,477, an increase of 3.4 per cent. The payrolls in these plants increased from $280,859 in May to $293,435 in June, an increase of 4.5 per cent.

The bureau also received reports from 165 structural iron plants giving their May employment as 27,994, increasing in June to 28,536, an increase of 1.9 per cent. The payrolls in these plants also increased from $853,262 in May to $863,059 in June an increase of 1.1 per cent.

One hundred and forty-five machine tool plants reported their May employment at 39,329, increasing in June to 39,929, an increase of 1.5 per cent. The payrolls in these plants increased from $1,312,477 in May to $1,321,472 in June, an increase of 0.7 per cent.

Manufacturers of machinery in Italy produce a diversified line because demand for a single line is restricted and offers no incentive for quantity production. Specialized machinery for high production rates usually has to be imported.

Industrial Men in the Day's News

William C. Dickerman, President, American Locomotive Co., New York

EXPANDING needs of railroads for locomotives prompted election of car company's vice president to the presidency of large locomotive builder.

MUNITION contracts executed by his company during war placed it third in list of purveyors of war materiel to the nation.

HIS initial position was with the Milton Car Works, Milton, Pa., later a part of the American Car & Foundry Co., of which he became vice president.

BEARING a direct relation to the increased number of locomotives ordered so far this year by railroads, William C. Dickerman was elected president and director of the American Locomotive Co., New York, to succeed William H. Woodin, who becomes chairman of the board. The greatly increased demand for the products of the American Locomotive Co., made this change desirable. The appointment was noted in IRON TRADE REVIEW of April 25.

In Mr. Dickerman the American Locomotive Co. comes under the direction of a man who has had broad industrial experience. During the World war he was in charge of the division which successfully executed munitions contracts by the American Car & Foundry Co. on behalf of the United States and the allied nations. These contracts, which were placed by the war department of the United States government, were sufficient in their aggregate value to rank his company third among the great industries supplying war munitions. Since 1919 Mr. Dickerman has been vice president in charge of the widespread operations of the American Car & Foundry Co., from which office he has resigned since the above appointment.

Mr. Dickerman was born Dec. 12, 1874, at Bethlehem, Pa. Upon his graduation from Lehigh university in 1896, he entered the employ of the Milton Car Works, Milton, Pa., of which company his father, the Hon. Charles H. Dickerman, was a partner and general manager. After serving successively in the auditing, purchasing and engineering departments of the Milton company, Mr. Dickerman, upon the formation of the American Car & Foundry Co., was appointed district manager of the Milton district, in which capacity he served until his transfer to New York in 1900.

In 1901 he was appointed sales agent and later was made general sales agent. In that capacity he had charge of the general sales of the American Car & Foundry Co. for four years. In 1905 he was elected vice president.

For a number of years Mr. Dickerman has enjoyed the closest associations with some of America's leading industrial interests. He is a director and member of the executive committee of the United Gas Improvement Co., a director of the American Car & Foundry Co., American Car & Foundry Securities Co., Carter Carburetor Corp., Columbia Phonograph Co. Inc., the J. G. Brill Co. and numerous others. He is trustee of Lehigh university and a member of the American Society of Mechanical Engineers, American Institute of Mining and Metallurgical Engineers, American Academy of Political and Social Science, New York Society of Colonial Wars, New York Society of the Sons of the Revolution and the Pennsylvania society.

He also maintains memberships in the Railroad, University, Metropolitan, Engineers and Embassy clubs, New York; University club, University, Pa.; Apawamis, Blind Brook, Westchester Biltmore country club, Westchester county, N. Y., and Maidstone and Devon Yacht clubs, Easthampton, N. Y. His town residence is at 6 East Seventy-ninth street, New York and he has a summer home at Easthampton, L. I.

Men of the Industry

CHARLES M. EASTERLY, formerly vice president of the Inland Steel Co., Chicago, and 18 years with that company prior to his resignation in 1928, has become first vice president in charge of sales of the Canton Rolling Mills Corp., Canton, O. After leaving the Inland company Mr. Easterly removed from the Milwaukee office, where he was in charge of sales, to Madison, Wis., where he was president of the Capital City Culvert Co. Prior to his connection with the Inland company, Mr. Easterly was with the Berger Mfg. Co. and Stark Rolling Mill Co., since absorbed by the Central Alloy Steel Corp.

* * *

Albert L. Salt, chairman of the Graybar Electric Co., Chicago, has been elected a director of the Sullivan Machinery Co., Chicago.

* * *

John L. Connors has been made assistant general manager and a director of the Galion Iron Works & Mfg. Co., Galion, O., a subsidiary of the Jeffrey Mfg. Co., Columbus, O.

* * *

D. R. Detwiller, formerly with the Anaconda Wire & Cable Co., New York, has been appointed sales manager of the Nehring Electrical Works, DeKalb, Ill.

* * *

M. A. Grossman, chief research metallurgist, Central Alloy Steel Corp., Massillon, O., sailed for Europe Aug. 9, further to study the special European steels which the Central Alloy corporation is preparing to produce.

* * *

J. X. Farrar, formerly assistant purchasing agent of the Jeffrey Mfg. Co., Columbus, O., has been made credit manager, succeeding H. Supp Jr., recently made treasurer of the company.

* * *

E. R. S. Reeder, district manager of sales for the Ludlum Steel Co., for 12 years, has been made manager of special contracts of the widia department of Thomas Prosser & Son, New York.

* * *

W. D. Little, of the Hoskins Mfg. Co., Detroit, and R. F. Benzinger, of the Electric Furnace Co., Salem, O., have been re-elected chairman and secretary, respectively, of the electric furnace section of the National Electrical Manufacturers' association, New York.

* * *

Curtis C. Watts, for many years affiliated with the outside selling organization of the Black & Decker Mfg. Co., Towson, Md., has been appointed assistant advertising manager of that company.

* * *

W. J. Meinel has been elected vice president in charge of operations of the Edward G. Budd Mfg. Co., Philadelphia. Mr. Meinel for some years was works manager.

CHARLES M. EASTERLY

H. A. Coward has been appointed secretary of the Budd company.

* * *

W. A. Grieves, now secretary of the Jeffrey Mfg. Co., Columbus, O., has been elected secretary of the Ohio Malleable Iron Co., a subsidiary of the Jeffrey company.

H. Supp Jr., treasurer of the Jeffrey company, has been made treasurer of the Ohio company.

* * *

Edwin Karlson, at various times associated with the Chandler, Cleveland, Marmon and Lozier automobile companies, has been made vice president in charge of production of the Peerless Motor Car Corp., Cleveland.

S. T. Creighton, Indianapolis, formerly with the Marmon Motor Car Co., has been made purchasing agent of the Peerless corporation.

* * *

William McBride, president and principal owner of the Fort Pitt Spring & Mfg. Co., Pittsburgh, until he sold out about a year ago, will become president of the Mead-Penn Iron Works Co., Meadville, Pa., Sept. 1. He succeeds Otto Kohler, who has resigned to attend to other interests. Mr. McBride will devote his whole time to the Mead-Penn company.

* * *

William E. Dunn Jr., executive secretary of the Southern Metal Trades association, has been elected secretary of the Southern Plow association, of which Clyde L. King, president of the Atlanta Plow Co., Atlanta, Ga., is president. Mr. Dunn, with headquarters in the Georgia Savings Bank building, Atlanta, also is head of the American Machine Shop institute, now being formed.

* * *

Robert Gregg, president of the Atlantic Steel Co., Atlanta, Ga., recently was re-elected vice president of the Georgia Manufacturers' association. Among directors re-elected were T. E. Golden, president, Golden Foundry & Machine Co., Columbus, Ga.; Horace Lanier, president, West Point Iron Works, West Point, Ga., and H. A. Dean, Towers & Sullivan Mfg. Co., Rome, Ga.

* * *

Walter H. Underwood, formerly sales manager of the St. Louis Gas & Coke Corp., St. Louis and Chicago, has become affiliated with Hickman, Williams & Co., Chicago. Mr. Underwood will serve as sales representative for the Hickman, Williams organization in the Chicago and Milwaukee territories. For a number of years Mr. Underwood was Chicago sales manager for the Domhoff-Joyce Co., Cincinnati.

* * *

W. H. Laury, for six years research engineer for the Axelson Machine Co., Los Angeles and St. Louis, has resigned from that position. He had been connected previously with the metallurgical and heat treating departments of Bethlehem Steel Co. He has been member of the standardizing committee on production equipment and of the Chamber of Mines and Oil, in California. He is a member

of the Engineers' club, Los Angeles, and of the American Society for Steel Treating and the Association of Mining and Metallurgical Engineers.

* * *

James Anderson, formerly connected with the United Engineering & Foundry Co., Pittsburgh, has been named works manager of the Cooper-Bessemer Corp., Grove City, Pa.

* * *

Willis B. Kyle, former vice president and general manager of McClintic-Marshall Co. of California, has purchased a one third interest in the Modern Iron Works, Los Angeles.

* * *

J. Frank Smith associated with the Worcester Pressed Steel Co., Worcester, Mass., for 20 years, has resigned to become sales manager of the Boston Pressed Metal Co., there.

* * *

H. E. Waldron, vice president and general manager of the W. A. Sheaffer Pen Co., has been elected a director of the Williams Alloy Products Co.

* * *

John Fielding Jr., purchasing agent of the Corrigan, McKinney Steel Co., Cleveland, since 1926, has been appointed assistant to President C. F. Hosford Jr. of the Butler Consolidated Coal Co., Butler, Pa.

George T. Lenz, who has been assistant purchasing agent now succeeds Mr. Fielding Jr. as purchasing agent of the Corrigan, McKinney Steel Co.

* * *

Beverly L. Sneed, formerly contracting manager, has been elected vice president of the Virginia Bridge & Iron Co., Roanoke, Va. He succeeds G. A. Tretter, retired. Mr. Sneed has been with the Virginia Bridge & Iron Co. for 25 years. He was chief draftsman before his promotion to contracting manager. Mr. Tretter had been connected with the company for 22 years and was vice president for several years.

* * *

Philip Dressler, president of American Dressler Tunnel Kilns Inc., Cleveland, is personally taking charge of all engineering and designing work in connection with tunnel kiln installations. Mr. Dressler is the son of Conrad Dressler, inventor of the muffle kiln bearing his name, and in his 14-year association with the company has served in various capacities from chief thermal engineer to president.

A. L. Vincent, vice president, who has been connected with the Dressler organization nine years, will take charge of the thermal engineering department.

Obituaries

HENRY S. Pickands, active partner in the firm of Pickands, Mather & Co., Cleveland, died unexpectedly in his office, Aug. 10. He was the elder son of the late Col. James S. Pickands, founder of the firm of Pickands, Mather & Co. with Samuel Mather and J. C. Morse. Henry S. Pickands was born at Marquette, Mich., Oct. 4, 1875. At the age of 6 years, with his father he removed to Cleveland when the firm

HENRY S. PICKANDS

of Pickands, Mather & Co. was formed in 1881. The father first had engaged in merchandising at Marquette, later becoming interested in iron ore mining. The young man was graduated from University school, Cleveland, in 1894, afterward completing the course at Sheffield Scientific school at Yale university in 1897.

Entering his father's firm which handled Lake Superior iron ore properties, lake vessels and coal, young Pickands learned the business just as any other employe. To him were entrusted many of the mining and engineering problems arising in the course of the firm's constantly expanding and widely ramified lines of business and industry. He became an active partner of the firm in 1900 and was one of the most conscientious and hard-working members of the firm. In June he had been elected vice president of the Interlake Steamship Co., largest independent vessel interest on the Great Lakes of which Pickands, Mather & Co. are managers.

* * *

Edward Newbegin, president of the Multnomah Iron Works, Portland, Oreg., died July 25.

* * *

Tim Cushing, owner and manager of the Tim Cushing Tool & Supply Co., Bristow, Okla., died Aug. 8 of a heart attack.

* * *

Harry E. Kies, 60, general manager of the malleable plant of the American Radiator Co., Buffalo, died there Aug. 10, following a week's illness.

* * *

Charles Thielgas, for 15 years foundry superintendent of the A. E. Martin Foundry & Machine Co., Milwaukee, died Aug. 4. Thielgas formerly was in the employ of the Edward P. Allis Co. and the Greenslade Foundry Co., having been superintendent of the latter 30 years.

* * *

Thomas E. Griffith, 50, general manager of the W. S. Tyler Co., Cleveland, for 12 years, died Aug. 10, from the effects of an operation July 30. He started with the wire screen and ornamental bronze manufacturing company as office boy in 1895 and after succeeding promotions, was made general manager in 1917.

* * *

Ernest Knefler, 49, president of the Knefler-Bates Co., Indianapolis, manufacturer of core binder and foundry facing flour, died Aug. 9 in that city, following an operation. He also was vice president of Hurty-Peck & Co. and he recently became vice president of the Indiana Consumers Gas & By-Products Co. He was born in Cincinnati in 1880 but removed to Indianapolis as a youth. He commenced his business career with the Cerealine Mills and in 1902 formed the American Hominy Co.

* * *

Merland M. Hedges, 69, retired manufacturer of Chattanooga, Tenn., died Aug. 7. In 1888 Mr. Hedges removed from Springfield, O., to Chattanooga, purchasing with the late James F. Casey, the boiler works, established by the late Alfred Webb. The Casey & Hedges partnership was succeeded by the Casey-Hedges Co. in 1893, when a cast iron pipe foundry was added. About two years ago

(*Concluded on Page* 436)

British Pig Iron Market Is Firmer

Railway Equipment Orders Improve—South Wales Steelworks Slackening Operations—Buying Quieter—German Finished Steel Demand More Active

European Headquarters,
IRON TRADE REVIEW,
Caxton House, Westminster, S. W.1

LONDON, Aug. 13.—(*By Cable*)—British pig iron is firm in all districts. Exports of pig iron from the Middlesbrough district in July, amounting to 12,094 tons, and of steel totaling 46,285 tons, were slightly under those of June. Buying generally is quiet. Home railways have placed orders for 700 freight cars, and the Central railway of Argentina has awarded 285 passenger coaches from Midland works. An order for 300 freight cars for Rhodesia has been placed at Birmingham. Structural orders are light, and South Wales steelworks operations are slackening due to quietness in galvanized sheets and tin plates. Demand for cast iron pipe is showing activity in this district at present.

Belgian prices are steadier. Barmakers are resisting pressure for concessions. A report from Paris states French exports are dull, but works are well occupied. Berlin reports increasing inquiry for finished steel. Pig iron is firm due to large demands from domestic steelmakers.

Production of pig iron in Great Britain in July is estimated at 670,000 tons compared with 657,800 tons in June and 654,800 tons in May. The number of furnaces in blast Aug. 1 was 167, or two more than on July 1. Steel ingot and castings output in July is estimated at 800,000 tons, compared with 830,900 tons in June and 843,800 tons in May.

British Steel Trade Finds Conditions Fair

BIRMINGHAM, Eng., Aug. 2.—(*European Staff Service*)—Output of pig iron in the Middlesbrough district continues to expand. The Cargo Fleet Co. is relighting a furnace this week and Bolckow Vaughan & Co. will restart one next week. While one furnace will go out for repairs there will still be an increase in the make and it is proposed to expand on a larger scale after the holiday, as supplies are still below requirements of foundries. The export trade is disappointing and an estimate of July figures places the total at about 5000 tons below June.

Sterling $4.85

There has been no increase in price, which is an encouraging feature. In east coast hematite manufacturers are pressing for higher prices but values appreciate slowly. Buying tends to slacken as home and Continental consumers have covered themselves well.

The advance of Midland pig iron declared a week ago has made little difference to the market. In effect the pig iron producers' association has given official sanction to a price which furnacemen were already able to obtain and consumers have shown no resentment but have come into the market with new business on a moderate scale. Heavy buying is not expected as consumers placed some thousands of tons late in second quarter.

At Barrow the dullness of the steel industry is responsible for an uncertain outlook among pig iron makers. The 12 furnaces in blast are sufficient for present demand and enough forward business has been booked to account for the output until the end of the year It is feared that at Barrow the steel rail mills may have to shut down

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, August 12	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON	£ s d		£ s d		£ s d		£ s d	
Foundry No. 3, Silicon 2.50-3.00	$17.58	3 12 6*	$16.98	3 10 0	$16.98	3 10 0	$17.46	3 12 0
Basic	16.61	3 8 6	17.10	3 10 6	17.10	3 10 6	16.73	3 9 0
Basic-bessemer	18.43	3 16 0†	17.10	3 10 6	17.10	3 10 6	16.73	3 9 0
Hematite, Phosphorus 0.02-0.05	18.31	3 15 6	24.76	630*	.....	.....	17.70	3 13 0
SEMIFINISHED STEEL								
Billets	$32.13	6 12 6	$24.74	5 2 0	$24.74	5 2 0	$27.89	5 15 0
Wire rods	41.83	8 12 6	30.92	6 7 6	30.92	6 7 6	30.07	6 4 0
FINISHED STEEL								
Standard rails	$40.01	8 5 0	$31.53	6 10 0	$31.53	6 10 0	$31.53	6 10 0
Merchant bars	1.79c	8 5 0	1.25c	5 13 6	1.25c	5 13 6	1.28c	5 16 0
Structural shapes	1.60c	7 7 6	1.15c	5 4 3	1.15c	5 4 3	1.14c	5 4 0
Plates, ship, bridge and tank	1.76c	8 2 6	1.41c	6 7 9	1.41c	6 7 9	1.40c	6 7 0
Sheets, black, 24 gage	2.17c	10 0 0	2.37c	10 15 0	2.37c	10 15 0	2.33c	10 12 0
Sheets, galvanized, 24 gage, corrugated	2.90c	13 7 6	3.01c	13 13 9	3.01c	13 13 9	3.08c	14 0 0
Bands and strips	2.17c	10 0 0	1.31c	5 19 6	1.31c	5 19 6	1.32c	6 0 0
Plain wire, base	2.06c	9 10 0	1.65c	7 10 0	1.65c	7 10 0	1.69c	7 14 0
Galvanized wire, base	3.04c	14 0 0	1.62c	7 7 6	1.62c	7 7 6	2.13c	9 14 0
Wire nails, base	2.39c	11 0 0	1.76c	8 0 0	1.76c	8 0 0	1.79c	8 3 0
Tin plate, base box 108 pounds	$ 4.43	0 18 3	.....	.....	.....	.....	$ 8.97	1 17 0

*Francs

Domestic Prices at Works or Furnace—Last Reported			Francs		Francs		Marks	
Foundry No. 3 Pig Iron, Silicon 2.50-3.00	$17.58	3 12 6	$18.57	475(2)	$17.24	620	$20.23	85
Basic pig iron	16.61	3 8 6	19.94	510(1)	17.38	625	21.67	91
Furnace coke	3.76	0 15 6	6.26	160	5.84	210	5.12	21.50
Billets	32.13	6 12 6	24.24	620	24.24	880	28.80	121
Standard rails	1.79c	8 5 0	1.46c	810	1.63c	1,250	1.51c	140
Merchant bars	1.79c	8 5 0	1.34c	745	1.40c	1,075	1.52c	141
Shapes	1.76c	8 2 6	1.26c	700	1.23c	945	1.49c	138
Plates, ship, bridge and tank	1.93c	8 17 6‡	1.49c	790	1.48c	1,140	1.71c	158
Sheets, black, 24-gage	2.28c	10 10 0	2.87c	1,595	2.73c	2,100	2.43c	225
Sheets, galvanized 24 gage, corrugated	2.90c	13 7 6	3.68c	2,045	3.58c	2,750	3.78c	350
Plain wire	2.06c	9 10 0	1.94c	1,075	2.15c	1,650	2.48c	230
Bands and Strips	2.17c	10 0 0	1.51c	840	1.53c	1,175	1.77c	164

*Middlesbrough; †Scotch foundry iron; ‡delivered; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 15s 6d ($4.00) f. o. b. Ferromanganese £21 13s, 0d ($105.00) delivered Atlantic seaboard, duty-paid. German ferromanganese £15 0s 0d ($72.75) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

for a time unless substantial business comes in within the next few days. At Workington operations have been intermittent for some time and rail and bar mills will be idle next week.

Prospects of the heavy steel trade are improved by inquiry coming out in constructional engineering. If this materializes the constructional trade will be busy in the autumn mainly on steel bars for reconstruction of buildings. Little is coming out in the way of bridge building. India and South America have dropped out of this market, as they are able to carry on the work in their own areas. Similarly with rolling stock India has ceased to take much interest since that country, like Australia, is concentrating on native production. The chief buyers at Birmingham railway carriage works are South American and the crown agents for the colonies for development work in Kenya, Uganda, Nigeria and the Federal Malay States. South Africa still takes a certain amount of business, but at the moment she is not booking liberally. Unfortunately English demand for wagons is quiet and the tendency is for home lines to build in their own shops.

At Middlesbrough steelworks the outlook has improved and works have contracts for some months. But some alarm has been felt by the drop in continental prices, both in finished and semifinished steel. It is reported that Bolckow Vaughan & Co. have booked an order for 2000 tons of rails and fishplates for South America.

In the Birmingham district merchants are quoting low prices for continental material. Tube strip has fallen considerably following the release of control by the cartel. This is of some importance to the Midland district, where this strip is used in large quantities, not only on account of the advantage in price but also because some users prefer the quality. Small steel bars have sold as low as £6 15s ($32.73) delivered into the Black Country, but it is considered by some merchants that the bottom has been reached and that there will be a reaction. Continental works are understood to be keen on securing business, as their order books need replenishing. No. 3 iron from Belgium is also available at £6 15s ($32.73). This competes with the Staffordshire product at £9 5s ($44.86).

In Staffordshire finished iron there will be a holiday next week, but conditions have shown improvement during first half and the outlook is hopeful for the autumn. Despite continued advance of raw materials both iron and fuel, there has been no increase in best quality iron at £12 ($58.20) a ton, this figure having been fixed some 16 months ago. In crown bars improvement has also been noted in orders during the last few weeks, although capacity is far from fully absorbed.

English billet makers are well employed, although new business is on a lighter scale in South Wales and competition from the continent is a factor to be reckoned with. Welsh makers quote £6 10s ($31.52) as a minimum, although where order books are in healthy condition as much as £6 15s ($32.73) is asked. Birmingham merchants are quoting £6 ($29.10) delivered for continental 2-inch billets, but the difference is not sufficient to attract much business.

It is announced by the *Sheffield Telegraph* that the contract for the steel work in Ford's Motor works at Dagenham, Essex, has been secured by Redpath Brown & Co. Ltd., Edinburgh. The buildings cover 25 acres, and the value of the contract is approximately £250,000. The steel work will be made in London, Manchester, Edinburgh and Glasgow.

German Steel Trade Holds Level in June—1928 Exports Were High

BERLIN, July 31.—(*European Staff Service*)—The steelworks association of Germany has issued its report covering activities of the association for June.

In the A-products union, which handles semifinished steel, railroad track material and heavy structural steel, business was about on the same level as in the previous month. Domestic orders for structural steel were fairly satisfactory, and export business was active. Export prices first tended to rise and then became easier. Inquiries for railroad track material did not come up to expectations, and the outlook is not particularly satisfactory.

The merchant bar union reported business quiet and practically on the same level as previously. From the hoop and band union it was stated that both domestic and export trade were satisfactory and more promising than in the past. Better conditions obtained in the domestic market for heavy plates, according to the plate syndicate. Export business has been calm, although prices have been firm.

The steelworks association of Germany also has issued its report covering 1928. Contrary to the conditions which prevailed in the preceding year, domestic trade in 1928 decreased, while export business enjoyed more satisfactory conditions. The output of pig iron in comparison with that of 1927, decreased by 1,300,000 metric tons, or 9.9 per cent. The output of raw steel decreased by 1,800.000 tons, or 11 per cent, and the output of rolled products, exclusive of semifinished steel, decreased by 1,400,000 tons, or 11.53 per cent. Sales of the steelworks association in the domestic market decreased by 1.370,000 tons, or 19.27 per cent.

Orders from railroads were restricted, owing to insufficient funds. Demand from mechanical engineering concerns and shipyards was restricted at times, owing to sporadic lack of occupation of the industries concerned, and conditions in the agricultural industry became worse.

While many concerns have managed to reduce overhead expenses, this has been counterbalanced by increases in wages and transportation rates. As from January, 1928, the domestic prices of semifinished products, profiles, merchant bars, hoops and bands, and plates were increased, and a further increase was put into effect in May, following the rise in coal prices.

During 1928 the volume of export demand was substantially higher than in the preceding year, and the tendency of prices was to increase. However, the increase in exports was not sufficient to balance the reduction in volume of domestic orders. Percentage of sales to foreign countries was 30.96 per cent of total sales, compared with 21.98 per cent in 1927.

Belgian Output Gains in Half Year

Brussels, July 31.—(*European Staff Service*)—Provisional figures giving iron and steel output in Belgium for the first six months of 1929 show an all-around increase in comparison with a year ago. The output of pig iron for the first half was 2,013,560 metric tons, against 1,906,360 tons for the first six months of 1928, an increase of 5.6 per cent.

The output of steel ingots and castings during first half was 2,039,540 metric tons, against 1,912,090 tons in the corresponding period of last year, an increase of 6.7 per cent. The production of finished steel this year was 1,778,910 metric tons, compared with 1,642,320 tons a year ago, an increase of 8.3 per cent.

Total production of coke for the first six months of this year was 3,004,040 metric tons, against 2,916.-170 tons for the first half of 1928, an increase of 3 per cent.

Figures by months are as follows:

Mon. ave.	Coke	Act. Furn.	Pig iron	Steel ingots and castings	Finished steel
1913	294,000	....	207,055	205,550	154,920
1926	413,000	....	283,270	281,160	231,810
1927	448,880	....	312,620	309,040	255,185
1928	493,885	....	325,445	327,870	281,125
1929					
Jan.	513,550	56	350,680	357,010	313.000
Feb.	458,740	55	302,320	302,020	266,790
Mar.	520,660	56	334,000	348,830	300,340
April	499,730	56	336,110	341,920	300,540
May	517,230	56	348,340	340,450	298,800
June	494,130	57	342,110	349,310	299,440

German Steelmaker Has Gain in Output

Berlin, July 31.—(*European Staff Service*)—The Vereinigte Stahlwerke, or United Steel Works of Germany, has issued its provisional report covering the third quarter of the financial year 1928-29, for the period April to June. Production during the quarter under review is shown in the following table, with figures for the quarter January to March, 1929, in metric tons:

	Jan.-March	April-June
Coal	6,838,320	6,960,440
Coke	2,431,578	2,608,471
Pig iron	1,660,403	1,719,172
Raw steel	1,824,733	1,882,182

Name Census Committee on Distribution

Washington, Aug. 13.—The department of commerce has announced the executive committe for the census of distribution, which has been approved by Secretary Lamont.

It includes F. M. Feiker, (chairman) managing director, Associated Business Papers Inc., New York; Dr. Melvin T. Copeland, professor of marketing, Harvard university; W. E. Freeland, Boston; Herbert T. Sheets, managing director, National Retail Hardware association, Indianapolis; and Henry S. Dennison, president, the Dennison Mfg. Co., Framingham, Mass.

The committee was named in accordance with a resolution adopted at the recent meeting of the advisory committee for the census of distribution to co-operate with the bureau of census in drawing up schedules and in connection with other preliminary work to the taking of the distribution census next year.

Mechanical Engineers To Meet in Akron

A meeting of the American Society of Mechanical Engineers has been announced for Oct. 21-23, at the Portage hotel, Akron, O. Eight sessions are being planned under auspices of the professional divisions and standing committees of the society. Applied mechanics, materials handling, education and training for the industries, aeronautics, steam power, iron and steel and management are some of the subjects which will be under discussion. Inspection trips to several of the large rubber companies in the vicinity are scheduled, as well as dinners and smokers at which prominent speakers will be heard.

Chain Price Is Advanced

Steel chain has been advanced to 6.25c per pound, Pittsburgh, for 1-inch proof coil. The quality extra on 2B has been advanced $1.25 and on 3B $1.50 to $2.25 per 100 pounds on both grades. Distributors' prices have been advanced to $11, base, Pittsburgh, on common 7/16-inch coil chain and to $9.50, Pittsburgh, on 1-inch. Chicago jobbers' prices on these sizes are up $1 per 100 pounds.

Engineers' Day Planned

Plans are being made for an engineer's day during the Cleveland air races and airplane show to be held in Cleveland Aug. 24-Sept. 2. The program is under the joint auspices of the Cleveland Engineering society and the Cleveland section of the American Society of Mechanical Engineers. One session being arranged on seaplane and flying boat development, is to be a symposium of papers by leaders in this field. Another session is planned on general developments at which Senor Juan de La Cierva, famous as the inventor of the autogyro, will present a paper.

Code for Tools Revised

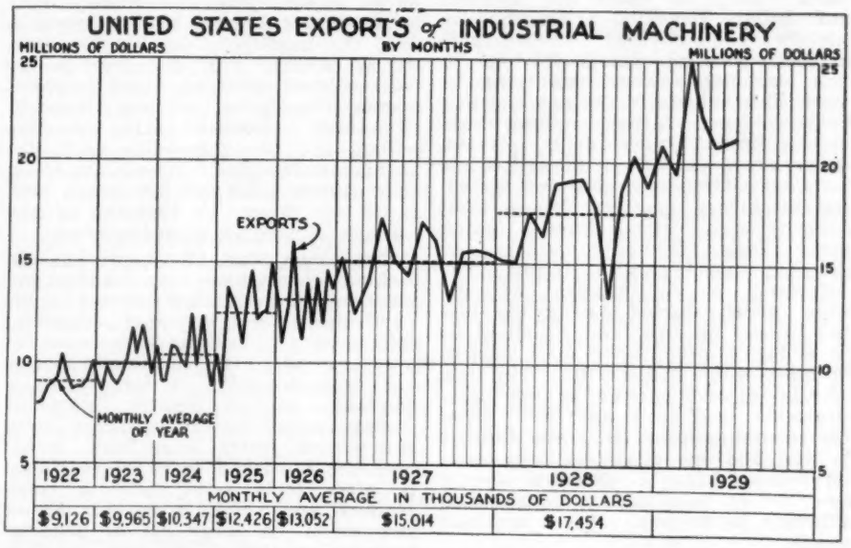
The division of simplified practice, department of commerce, Washington, is distributing revised simplified practice recommendation No. 17 relating to forged tools. This was the second revision of the original standard and became effective for new production as of July 1.

More Cars Need Repairs

Class I railroads July 15 had 145,411 freight cars in need of repair or 6.5 per cent of the number on line, according to the car service division of the American Railway association, Washington. This was an increase of 3347 cars above the number reported on July 1.

Freight cars in need of heavy repairs July 15 totaled 100,354 or 4.5 per cent, a decrease of 233 compared with July 1, while freight cars in need of light repairs totaled 45,057 or 2 per cent, an increase of 3580 compared with July 1.

Industrial Machinery Exports in Six Months Top Former Years



EXPANSION of exports of American industrial machinery goes steadily on, continuing the trend of the past six years, states L. J. Cochrane, industrial machinery division, department of commerce. The volume for the first half of 1929 is nearly $130,000,000, compared with $102,000,000 for the corresponding period of 1928. Moreover, the business in the first six months of this year approximately equals the volume for the entire year of 1924 and considerably exceeds the volume for either 1922 or 1923.

It will be observed that these shipments are approaching a level of about $1,000,000 per working day, obviously a trade of very substantial importance when measured simply in terms of its monetary value, but of even greater significance in view of the economic significance of machinery and the forces that the employment of this equipment will release in the countries of destination, whether this be highly specialized machinery for the advanced industries of Europe or construction and other machinery that may be employed in more backward territories.

Recovery from the serious condition in which the industry found itself during the postwar slump is obviously most gratifying to all concerned and the fact that the exports for first half of this year show an increase of more than 27 per cent over the corresponding period a year ago, suggests that the tendency toward further expansion is still vigorous, with no evidence of change.

Machinery

August Sales Surprisingly Heavy—Considerable Buying Is for Future Requirements —Export Business Is a Feature

UNABATED activity holds sway in machinery trading as the summer season wanes. Although large lots are scarce, a steady and widespread volume of smaller inquiries is ever present. Large electrical interests are active buyers while railroads continue dormant. A good volume of diversified machines is going to Russia. Considerable buying is for future requirements as a result of the delayed delivery situation which has not been bettered materially on most lines. Used tools, even for rebuilding purposes, are scarce, one eastern dealer offering a premium for a lengthy list of such tools. Return of the automotive trade to the market is expected soon, Packard Motor Co., already having placed a list, according to reports. Prices are steady.

New York, Aug. 13.—Machine tool buying continues heavy with many buyers placing orders for more distant delivery which shows little improvement on standard tools. Special machinery cannot be promised for several months. Practically all lines are taking equipment, railroads being the only branch displaying a tendency to hold off. New York Central, however, is taking a few tools. Only in spots are builders and dealers reporting a recession in inquiry and buying. Considerable business develops weekly for one or two machines without lists being issued. This volume in the aggregate is large. Speed lathes, milling machines, brakes, radial drills, planers, shapers are in heavy demand while business continues to pour into grinding machinery plants. Export business is also active, Russia taking many tools, including lathes and grinding machinery. August has witnessed a continuation of the spurt which started during the last two weeks in July and promises to be a big month. With most dealers in other years August has been one of the slowest months of the year. Desirable used tools are few. Even for rebuilding used tools are difficult to find and one dealer in this territory is offering a premium for a long list of used tools which he has difficulty in buying. Prices continue steady.

Pratt & Whitney Co. is buying heavily for the factory addition at East Hartford, Conn. A large volume of grinding machinery is being placed, also lathes and automatics. General Electric Co., of the steadiest buyers of equipment in the east, especially for its refrigeration plant which is undergoing large expansion, continues to take a liberal quota and wants six engine lathes, in addition to other standard equipment. Western Electric Co. and Westinghouse Electric & Mfg. Co. also are active in the machinery market, while the Curtiss Aircraft Corp. expansion program at Valley Stream, L. I., will include repair and machine shop equipment. Cutler-Hammer Inc. is building a new plant in New York and will require equipment. Keller Mechanical Engineering Co., Brooklyn, also is buying equipment, including turret lathes and other tools. It is understood this firm is ordering well in advance for future requirements.

Bearing makers are operating at capacity and are buying tools, expanding in anticipation of increased operations on the part of the automobile makers. Packard Motor Co. is reported to have placed a list this week, including an order for six grinders with a New England builder. Machine motor plants are active, reflecting the demands from all machine builders.

Worcester, Mass., Aug. 13.—With large inquiry from the Russian government and General Motors outstanding, the machinery market is expectantly active, with delivery, though still delayed, showing some improvement. No price revision impends. Meanwhile tractors are showing strong and the automobile trade demand remains good. Wheels are brisk. The recent stock market break presents no threat to business in the opinion of leading manufacturers.

Pittsburgh, Aug. 13.—Large lots are lacking in machine tool inquiry and awards, but the market remains active, particularly for this period. Seasonal influences are holding some work in abeyance but little pending business has been dropped. A large number of tools are on inquiry, scattered among various buyers, although there are several fairly large lists. Westinghouse Electric & Mfg. Co. continues to place tools from time to time. Dealers are active in estimating on new work. A large list of pending business remains in the crane market, but awards are light.

Cleveland, Aug. 13.—Sales continue to be carried along on the high tide of business, with a few manufacturers reporting slight slackening in inquiries. Used machinery is not moving as well as it has in some months past. A large share of buying today is for replacement and for future needs, the fact that deliveries are deferred as long as the first of 1930 probably accounting for this tendency. One manufacturer reports a good export trade, principally to continental Europe. Specialized modern machinery for such industries as radio, electrical, and refrigeration meets with the greatest demand, while there is less call for the older standardized machines such as planers and shapers. Prices have undergone no revision.

CRANE ORDERS PLACED

Four 15-ton gasoline operated caterpillar cranes to Foundation Co., New York, for export, to Industrial Brownhoist Corp.

Among single orders placed were: 25-ton caterpillar crane for Manchester Gas & Coke Co., Manchester, N. H., to Industrial Brownhoist Corp.; 15-ton used caterpillar crane for Worthington Pump & Machinery Corp., New York, to unstated builder.

Building Costs Lower

The cost of industrial construction is now 40 per cent under the peak reached in 1920 and is at the lowest point late in 1922, states the Austin Co., Cleveland. It computes the cost of a new factory structure today as 6 per cent below the average for the past ten years. This computation is based on the standard building, 100 x 200 feet, and inlcudes prices of material and wages of labor.

Obituaries

(*Concluded from Page* 432)

it was merged with the Walsh & Weidner Boiler Co. under the name of the Hedges-Walsh-Weidner Co. Mr. Hedges then disposed of his stock to the International Combustion Engineering Corp. which now operates the plant.

* * *

Roland Gerry, who on Jan. 1, 1925, resigned as a director of the Jones & Laughlin Steel Corp., Pittsburgh, retiring to devote his time to private interests, died in Pittsburgh Aug. 9. His entire business life of 44 years had been spent with the one organization. He started with Jones & Laughlin in a minor clerical capacity in 1880 and rose until he became a director and manager of sales in the cold rolled division. Mr. Gerry was one of the most widely acquainted men in the steel industry. He was a member of the American Iron and Steel institute for nearly a score of years and participated actively in its affairs. Mr. Gerry was born in Waterford, Maine, in 1860.

CONSTRUCTION *and* ENTERPRISE

Concise Timely Business Building Opportunities from Field of Industry

North Atlantic

BEACON FALLS, CONN.—H. D. Bronson Co., manufacturer of metal stampings, etc., is having plans prepared for a 2-story plant addition, 35 x 100 feet.

BRIDGEPORT, CONN.—United Illuminating Co. 1118 Broad street, awarded contract for a power house on East Main street to Edward Bray Co., 362 River street. Estimated cost $350,000.

GROTON, CONN.—Vanadium Metals Co., Boston Post road, has awarded contract for a 1-story foundry, 50 x 124 feet, to H. R. Douglas & Son, Barrows building, New London, Conn. Estimated cost about $40,000. General offices of the company are in the Flannery building, Pittsburgh.

HARTFORD, CONN.—Manila Electric Co., controlled by the Associated International Electric Corp., 49 Pearl street, Hartford, has started construction of a hydroelectric project at Botocan Falls, in the province of Laguna, Philippine islands. Approximately $1,000,000 will be spent in the United States for machinery and materials. The company is considering additional plants.

BALTIMORE—W. A. Fingles Inc., sheet metal worker, 29 South Howard street, has rejected bids for a proposed plant addition. (Noted July 11.)

READING, MASS.—S. R. Stembridge, 74 King street, has plans for construction of a 1-story service and repair garage at High and Haven streets. Estimated cost about $40,000.

NEWARK, N. J.—Fire recently damaged the garage and assembly plant of the Mack International Truck Corp. here, with an estimated loss of $500,000.

PATERSON, N. J.—Wright Aeronautical Corp. advises that construction of a proposed plant addition has been postponed for the time being.

BUFFALO—McCauley Metal Products Inc., 660 Grant street, has plans for construction of a 1-story storage and office building estimated to cost $30,000.

BUFFALO—John Davidson, 79 Sanford street, will soon take bids for a 1-story salesroom and repair shop addition, 25 x 90 feet, at 1340 Michigan avenue.

BUFFALO—Plans will probably be formulated about Aug. 15 for an airplane plant on a site to be selected in Buffalo or vicinity. The company is now being formed. G. MacLean Gardner, 344 Roycroft boulevard, Snyder, Buffalo, is president. Size and details are incomplete at this time.

NEW YORK—Ampere Engineering Co. Inc., care A. Harvey Radden, 215 Montague street, recently incorporated to manufacture toy devices, etc., advises it will probably purchase a plant. (Noted Aug. 8.)

TONAWANDA, N. Y.—Curtiss Aeroplane & Motor Co., 74 Kail street, Buffalo, is undecided when plans will be started for the construction of the next unit of the plant at Vulcan street and Kenmore avenue, here. Successive units will probably cost between $5,000,000 and $7,000,000.

ERIE, PA.—Erie Bolt & Nut Co., Liberty street, advises through H. O. McCully, vice president, it has awarded contract to the H. J. Conrath Co., Erie, for a 2-story plant addition, 50 x 182 feet.

PHILADELPHIA—Pitcairn Aviation Inc., Land Title building, has plans for construction of a plant for manufacture of autogyros at Hollwell field here.

PHILADELPHIA—Paul Brosz, 2515 West Huntingdon street, has been granted construction permit for plant improvement for the Weidemann Machine Co.

PHILADELPHIA—West Philadelphia Motor Co., 4615 Walnut street, will construct a 2-story sales and service building on property, 65 x 214 feet, at 4227 Chestnut street.

PHILADELPHIA—John G. Lorenz Corp., Thirty-third and Reed streets, manufacturer of metal lockers, ceilings, etc., has awarded contract for a plant addition containing 24,000 square feet, to the Farrell-Roth Construction Co., 21 South Forty-sixth street.

TARENTUM, Pa.—Tarentum Steel Corp., care Frank C. Irvine, 128 East Eighth street, recently incorporated to manufacture sheets for the automobile industry, advises it is arranging for the purchase of a tract of nearly 16 acres, upon which it will build a plant.

WILLIAMSPORT, PA.—Lycoming Mfg. Co. has started construction of a 2½-story foundry addition, 43 x 320 feet. Estimated cost about $150,000.

PROVIDENCE, R. I.—Morgan Brass Foundry, Lincoln avenue, has plans for rebuilding its plant recently damaged by fire. New equipment will be required.

East Central

BLOOMINGTON, ILL.—City, care board of improvements, B. S. Rhodes, president, city hall, contemplates improvements to the light and water plant. Burns & McDonnell Engineering Co., Interstate building, Kansas City, Mo., are engineers.

CHICAGO—Beckley-Ralston Co., 42 West Twenty-second street, manufacturer of automobile supplies, has purchased property, 25 x 132 feet, for expansion purposes.

CHICAGO—Central Steel Ball Co. Inc., 208 West Washington street, recently incorporated to manufacture steel balls, advises it will lease a plant.

CHICAGO HEIGHTS, ILL.—Columbia Tool Steel Co., Fourteenth street, is taking bids for a power plant. Sessions Engineering Co., 228 North LaSalle street is engineer.

LA SALLE, ILL.—Western Clock Co. will construct a 4-story plant building, which will add about 25,000 square feet of floor space to its plant at East Fifth and Buffalo streets.

GRIFFITH, IND.—Keene Foundry Co. will start immediately on an expansion program, which will increase its output more than 30 per cent. Estimated cost $25,000. L. E. Keene is president.

ADRIAN, MICH.—American Show Case Co. has started construction work on its plant here recently damaged by fire. The Robb-Ott Co. has the contract for the new engine room and power house. General offices are at 5235 Grand River avenue, Detroit. (Noted July 4.)

GRAND HAVEN, MICH.—City, care M. J. Vanden Bosch, clerk, contemplates building an addition to the power and light plant to cost about $237,000. Giffels, Hamilton & Weeber, Grand Rapids Bank building, Grand Rapids, Mich., are engineers.

HOUGHTON, MICH.—State administrative board has authorized the release of a fund of $42,500 for improvements to plant and equipment of the Michigan College of Mining and Technology here.

KALAMAZOO, MICH.—Checker Cab Mfg. Corp., North Pitcher street, will soon take bids through Albert Kahn, architect, Marquette building, Detroit, for a one and 2-story plant addition to cost about $500,000. (Noted June 27.)

LANSING, MICH.—The foundry of the Michigan Brass & Iron Works was recently damaged by fire.

LANSING, MICH.—John Bean Mfg. Co., 735

Hazel street, has started to take bids through J. N. Churchill, architect, Prudden building, for a one and 2-story office and machine shop addition. Estimated cost about $30,000.

CANTON, O.—Canton Drop Forge & Mfg. Co., 1143 Willett avenue southeast, will construct an addition to the drop forge department 90 feet wide and several hundred feet long. Construction will be under F. L. Cavender, general superintendent.

CLEVELAND—Linderme Tube Co., 1291 East Fifty-third street, manufacturer of copper tubing, has plans for construction of a plant addition, 60 x 100 feet. Kalsch & Hoefler, 4500 Euclid avenue, Cleveland, are the architects.

CLEVELAND—Whiteway Stamping Co., 1201 East Fifty-fifth street, has awarded contract for construction of a new plant building to the Boldt-Rapp Co., 5511 Euclid avenue. Work will probably start this fall. (Noted Aug. 1.)

CLEVELAND—Gogan Machine & Foundry Co., 1440 East Fifty-fifth street, has awarded construction contract for a plant addition, 40 x 72 feet, to the J. L. Hunting Construction Co., Guarantee Title building, Cleveland. Estimated cost about $70,000.

CLEVELAND—Sheffield Bronze & Stencil Co., 2375 East Fifty-fifth street, has leased 20,000 square feet of floor space in a building at 5815 Kinsman road, for expansion purposes. The company manufactures bronze powder and stencils.

CLEVELAND—Dill Mfg. Co., 684 East Eighty-second street, manufacturer of valves, caps, etc., has purchased property on Mandalay road, northeast, containing more than five acres. Plans for a new plant will be announced soon, according to officers of the company.

CLEVELAND—Hadlow, Hughes, Hicks & Conrad, architects, Citizens building, are taking bids for a 1-story sales and service building for the White Motor Co., to be built at East Forty-ninth street and St. Clair avenue. Estimated cost $200,000.

CLEVELAND—Electric Products Co., 1725 Clarkstone road, manufacturer of electro-plating motor generator sets and battery charging equipment, is taking bids through H. M. Morse, architect, 750 Prospect avenue, for a 1-story plant addition, 86 x 90 feet. Cranes will be purchased.

CLEVELAND—National Bronze & Aluminum Foundry Co., East Eighty-eighth street and Laisy avenue, awarded contract through Earnest McGeorge Inc., architect, 3030 Euclid avenue, for a 1-story warehouse and plant addition, 71 x 109 x 200 feet, to the Arthur H. Binns Co., 7504 Carnegie.

CLEVELAND—Cleveland Switchboard Co., 2925 East Seventy-ninth street, is having plans prepared for a plant addition to be used for a paint room and warehouse. The space vacated by these departments in the main building, will be used for additional manufacturing with installation of new machinery.

CLEVELAND—Cleveland Heights Air Terminal Inc., Ninth and Vincent building, plans construction of an air terminal on a recently acquired tract of about 250 acres in Highland Heights village. Hangars, repair shops, etc., are included in the plans. Raymond P. Cunningham is vice president.

CUYAHOGA FALLS, O.—Kent Machine Co., Kent, O., is taking bids to close at once for a 1-story machine shop, 70 x 100 feet, at its plant here. George S. Rider Co., Century building, Cleveland, is architect.

DAYTON, O.—Reick Sheet Metal Works, recently damaged by fire, advises building will be rebuilt and equipment purchased locally.

DAYTON, O.—Government, care quartermaster's office, Capt. Doten in charge, Wright field, will take bids until Aug. 23 for a boiler house. Estimated cost about $320,000.

DAYTON, O.—Dayton & Troy Auto Co., Second and St. Clair streets, has plans for a 1-story and basement auto sales and repair building, 100 x 220 feet. Estimated cost about $100,000.

MANCHESTER, O.—East Ohio Gas Co., 1405 East Sixth street, Cleveland, is having plans prepared for a gas compressor station at its property here. Plans include four 180-horsepower gas compressors.

SPRINGFIELD, O.—Ohio Steel Foundry Co., West Fourth street, Lima, O., awarded contract for a plant addition here, 100 x 200 feet, to A. G. Samuelson Inc., Springfield. Overhead cranes, electric furnaces, grinding machinery, etc., will be installed. (Noted July 11.)

TOLEDO, O.—Standard Locomotive Equipment Co., manufacturer of railroad equipment and accessories, recently incorporated, has purchased property and will start immediate construction of a plant costing about $100,000. W. W. Campbell, Ohio building, was one of the incorporators. (Noted May 30.)

YOUNGSTOWN, O.—McKay Machine Co., Foster and Rayen avenues, awarded contract for a plant addition to Emil P. Linberger, 830 Market street. (Noted June 27.)

YOUNGSTOWN, O.—Photogenic Machine Co., 512 Andrews avenue, has purchased a plant at 21 Olive street, where it plans to build a foundry.

HINTON, W. VA.—Chesapeake & Ohio railroad, Richmond, Va., has awarded contract for an addition to its engine terminal here to the John W. Cowper Co., Richmond, estimated cost $265,000. An 800-ton concrete coaling station will also be built.

CLINTONVILLE, WIS.—Little Wolf Co. is about to select an engineer to prepare plans for a concrete dam and hydroelectric power plant costing about $75,000 on the Little Wolf river, at Phillipp's Bridge, near this city. Dr. W. H. Finney is president, and Frank L. Zaug of New London, Wis., is secretary.

EAU CLAIRE, WIS.—Northwestern Motor Co., Starr avenue, has started work on the erection of a 1-story addition, 42 x 125 feet, to its gray iron foundry.

MADISON, WIS.—C. B. Fritz & Co., 138 North Frances street, are low bidders at $556,988 for the general construction of the new mechanical engineering building at the University of Wisconsin, Madison. It will be 3-story, 230 x 230 feet over all, of stone, steel and brick. The total appropriation available is $577,000. Arthur Peabody is state architect.

MILWAUKEE—Moe Bros. Mfg. Co. has leased a plant on East Clybourn street for manufacture of electric lighting equipment. About 15,000 square feet will be equipped for production to start early in September.

MILWAUKEE—Karl Mfg. Co., 1550 Bankers building, recently incorporated to manufacture metal safety devices for the gas industry, advises through Ray E. Gest that it is leasing a plant for the present, but is making plans for building. (Noted July 11.)

MILWAUKEE—Milwaukee county park commission is taking bids for the construction of a brick and steel hangar, 80 x 100 feet, at the Milwaukee county airport, for the use of the experimental department of the Hamilton Metalplane Co., with plant at 530 Park street. Charles F. Barndt is general manager of the Hamilton company.

MILWAUKEE—Henry Danischefky, 1484 Humboldt avenue, Milwaukee, is successful bidder for the construction of a $250,000 shipping warehouse to be built by the Chicago & North Western railroad on the site of the old Milwaukee Dry Dock Co. at the foot of Washington street. It will be leased to the Nicholson-Universal Steamship Co., 225 Erie street, Milwaukee.

SPARTA, WIS.—L. G. Arnold Co., Eau Claire, Wis., is low bidder at $28,900 for the erection of the building for a new 1-story power plant, 94 x 118 feet, at the state school for dependent children here. Arthur Peabody, Madison, Wis., is state architect.

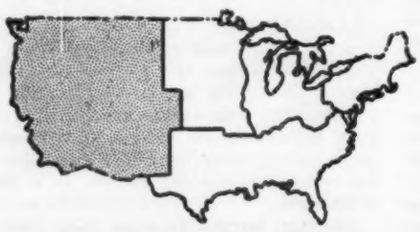
Southern States

TAMPA, FLA.—Prest-O-Lite Co. Inc., 30 East Forty-second street, New York, has opened bids for construction of an acetylene plant here. (Noted March 28.)

LOUISVILLE, KY.—Hart Mfg. Co., 1600 North Western Parkway boulevard, manufacturer of furnaces, castings, etc., has plans for rebuilding part of plant recently damaged by fire.

NEW ORLEANS — Schindler's Machine Works, 423 Poydras street, has leased a 1-story brick building at 623 South Peters street, for a machine shop.

ARDMORE, OKLA.—Fire recently damaged the plant of the Fraley Toy & Novelty Co. Estimated loss to plant and machinery is about $23,000.



Western States

ALAMEDA, CALIF.—San Francisco Airdrome Inc., care L. Schloss, architect, 5625 Ocean View drive, will soon take bids for construction of an airdrome near the Estuary tube. Three hangars are included in the plans.

ALHAMBRA, CALIF.—It is reported that General Motors Corp., Detroit, proposes to build a Delcolite plant near here. One site mentioned is on Valley boulevard opposite the new landing field of the Western Air Express.

AGUA CALIENTE, CALIF.—Agua Caliente Co., care Wayne D. McCallister, architect, 527

Commonwealth building, San Diego, Calif., has awarded general contract for construction of bath house and a power plant to the American Building & Investment Co., 2672 Fifth avenue, San Diego. Estimated cost $250,000.

BAY POINT, CALIF.—McCoomb Dirigible Corp. is reported to be planning the construction of a plant here on a site owned by the Pacific Ship Building Co. Officials of the latter company admit that negotiations for such a plant are under way.

COMPTON, CALIF.—Southern California Edison Co., Edison building, Los Angeles, is having plans prepared for a substation here. Estimated cost $200,000.

EAST OAKLAND, CALIF.—Boiler Tank & Pipe Co., 4061 Piedmont avenue, Oakland, has started construction of a 1-story steel frame boiler shop on a 3-acre tract here. A craneway, 60 x 350 feet is included. Equipment will be installed.

HOLLYWOOD, CALIF.—Hollywood Casket Co., 1021 Orange drive, has plans for construction of a 2-story plant estimated to cost about $50,000. Pope & Burton, Beaux Arts building, are architects.

LOS ANGELES—United Aircraft & Transportation Corp., 51 Pine street, New York, has organized the Northrop Aviation Corp. to take over the assets of the Avian Corp., Los Angeles. The United company has plans for the construction of a plant for the Northrop Corp. at Burbank field, Los Angeles.

LOS ANGELES—A. M. Edelman & A. C. Zimmerman, associated architects, 824 H. W. Hellman building, have been authorized by the Western Air Express, 117 West Ninth street, to prepare plans for several hangars to be located at its western airports.

MODESTO, CALIF.—City Engineer Frank J. Rossi, in a report to city council, recommended the purchase of a site and the construction of a machine shop and corporation yard structures.

OAKLAND, CALIF.—Aluminum Co. of America, Oliver building, Pittsburgh, which recently purchased the Modern Foundry & Pattern Works, 3110 Adeline street, plans adding a heat-treating department. A molding, aluminum die-casting and forging departments will also be added at a later date.

SACRAMENTO, CALIF.—City is having plans prepared by Jens C. Petersen, architect, California State Life building, Sacramento, for group of airport buildings in East Sacramento district. Project is in a very preliminary stage. Estimated cost about $900,000.

SANTA, ANA, CALIF.—Richfield Oil Co., engineering department, Bartlett building, Los Angeles, is completing plans for a group of plant buildings here. A warehouse, pumphouse and garage are included in the plans.

West Central

KANSAS CITY, MO.—Cook Glider & Sail Plane Co. has started construction of a plant for manufacture of gliders at the Fairfax airport here.

KIRKSVILLE, MO.—City, care H. Stookey, mayor, is having new survey drawn for electric light and power plant. Black & Veatch, Mutual building, Kansas City, Mo., are engineers.

Canada

STERLING, N. B.—British Metal Corp. of Canada will build large plant addition and erect power house of 1000 horsepower capacity here. H. R. Bissell is general manager.

CHATHAM, ONT.—Hayes Wheels & Forgings Ltd. is building additions to plants here and at Merritton, Ont. The plant addition here and the installation of machinery will call for an expenditure of $325,000, while $100,000 will be spent on the Merritton plant. (Noted July 4.)

HAMILTON, ONT.—Steel Co. of Canada, Hamilton, has just awarded contracts for a plant addition to cost upwards of $500,000. In addition it has announced that it will erect a galanvized wire plant at Hamilton to cost $500,000 for the manufacture of galvanized wire, barbed wire and other fencing material.

HAWKESBURY, ONT.—Canadian Hydroelectric Corp. has started work on the erection of a transformer station here to cost $200,000. Five large transformers will be installed.

KINGSTON, ONT.—Tenders will be called soon for an addition to the plant of the Kingston Shipbuilding Co., Ontario street.

ST. CATHARINES, ONT.—Canadian Lightning Fastener Co. will build an addition to its plant here to double the present capacity. Machinery and tools will be purchased. Harold G. Fox is manager of the company. Newman Bros. have construction contract.

VINEMOUNT, ONT.—The plant of the Canada Crushed Stone Co. was destroyed by fire with a loss of $85,000. Loss is covered by insurance. Owners propose to rebuild without delay and are interested in machinery and equipment for new plant.

WALKERVILLE, ONT.—Hiram Walker & Sons Metal Products Ltd., Kildare road, has started work on a 1-story 40 x 60 foot factory addition to cost $24,000.

LONGUEUIL, QUE.—Bids will be called soon for the main building, boiler house, etc., to cost $30,000 for the Fairchild Aircraft Ltd., 1253 McGill College avenue. Engineer, W. H. Wardell, 1463 Union avenue, Montreal, Que.

MONTREAL, QUE.—Simmons Ltd., 400 St. Ambroise street, will immediately start work on an addition to its plant here to cost $144,000.

Recent Incorporations

WICHITA, KANS.—Ace Aircraft Mfg. Corp., has been incorporated with 25,000 shares of no par stock to manufacture aircraft, by Gov. Clyde M. Reed, Henry J. Allen, George H. Siedhoff and others.

CHICAGO—Central Steel Ball Co. Inc., 208 West Washington street, has been incorporated with $10,000 capital to manufacture and sell steel balls and bearings, by Albert F. Schmudde.

CHICAGO—Electric Wonder Sign Co., 130 North Wells street, has been incorporated with $10,000 capital to manufacture and deal in electric signs and parts, by Edward M. Britton.

CHICAGO—Metal Parts Corp., 625 West Jackson boulevard, has been incorporated with $15,000 capital to manufacture and deal in screw machine products, by L. F. Zygmunt.

CHICAGO—Boyle Ice Cream Co., 4628 Greenview avenue, has been incorporated with $10,000 capital to manufacture machinery, tools and implements used in dealing with ice, by Cobert Etshokin.

CHICAGO—Radio & Television Institute Inc., 2150 Lawrence avenue, has been incorporated with $20,000 capital to construct and operate engineering, electrical and machine shop works, by Karl M. Gibbon.

CHICAGO—Northwest Machine Co., 4553 Diversey avenue, has been incorporated with $10,000 capital to manufacture and deal in metals and other materials, by Frank A. Wirth.

CHICAGO—Hyde Park Auto & Machine Works, 1516 East Fifty-fourth place, has been incorporated with $1000 to repair motor vehicles, by Harry Fisher.

CHICAGO—Midwest Specialties Corp., 440 West Huron street, has been incorporated with 200 shares of no par stock to engage in the business of mechanical engineering, toolmaking and metalworking, by Phillip C. Booty.

CHICAGO—General Power Door Co. of Illinois, 2626 South Parkway, has been incorporated with $10,000 capital to manufacture and deal in garage doors, hardware and machinery, by Leo A. Parker.

CHICAGO—Sykes Metal Products Co., 6036 South State street, has been incorporated with $60,000 preferred and $15,000 common stock to engage in the manufacturing, construction and contracting business, by A. L. Sykes.

ROCKFORD, ILL.—Moto Products Co., 601 South Wyman street, has been incorporated with 100 shares of no par stock to manufacture and deal in auto parts and accessories, by James R. Wood.

INDIANAPOLIS—Fall Creek Corp. has been incorporated with 1000 shares of no par stock to manufacture and sell machinery. Harry D. Hartley, Merchants Bank building, is one of the incorporators.

MONTICELLO, IND.—Monticello Mfg. Co. has been incorporated with $30,000 capital to manufacture metal and paper products, by Francis F. Melvin.

BOSTON—American Automobile Corp. has been incorporated with 5000 shares of no par stock to manufacture and deal in all kinds of vehicles, tools and machinery. Francis A. Lavelle, 33 Broad street, Boston, is president and treasurer.

WORCESTER, MASS.—American Autobody & Welding Works Inc. has been incorporated with $25,000 capital to manufacture auto bodies and accessories, etc. John O. Lustman, 3 Everard street, Worcester, is treasurer.

DETROIT—Acme Steel Treating Co., Lieb

street, has been incorporated with 5000 shares of no par stock to engage in treating steel and metals, by William H. Walter.

HOBOKEN, N. J.—Electro-Matic Mfg. Co. Inc. has been incorporated with $100,000 preferred and 50,000 shares of common stock to manufacture electric water heaters, by Kealey & Gilbert, 79 River street, Hoboken.

CLIFTON, N. J.—N. P. Nelson Iron Works Inc. has been incorporated with $500,000 capital to deal in ornamental iron, by Louis A. Cowley, 657 Main street, Passaic, N. J.

NEWARK, N. J.—Daniels Construction Co. has been incorporated with 2500 shares of common stock, by Harry Levin, 24 Commerce street, Newark.

BELLE ROSE, N. Y.—Muller Service Corp. has been incorporated with $10,000 capital to repair machinery, by Connolly & Frey, 189 Montague street.

NEW YORK—West Farms Welding & Machine Co. has been incorporated with $2000 capital by J. Bruccoli, 3648 White Plains avenue.

NEW YORK—Aviation Engineering Corp., 225 West Fifty-seventh street, has been incorporated with $250,000 capital to manage airports and manufacture airplanes.

NEW YORK—Accurate Machine Works, metal products, has been incorporated with $10,000 capital, by Wacht & Cohen, 25 West Forty-third street, New York.

SAPULPA, OKLA.—A. Saxon Mfg. Co. has been incorporated with $51,000 capital to manufacture rotary internal combustion engines, by J. A. Saxon, Sapulpa, and J. W. and Fred W. Saxon, Shawnee, Okla.

ELLWOOD CITY, PA.—Standard Cotter Pin Co. of Ellwood City has been incorporated with $75,000 capital to manufacture cotter pins, etc. H. M. Cresswell, 215 Glen avenue, is treasurer.

HARRISBURG, PA.—Harrisburg Steel Co. has been incorporated with 57 shares of no par stock to manufacture iron, steel and other metal products. R. Frank Shaffner Jr., 224 Peffers street, is treasurer.

PHILADELPHIA—Kraberhall Inc. has been incorporated with $10,000 capital to manufacture and deal in nuts, bolts, locking devices, etc. Albert Hall, Remington road, Wynnewood, Pa., is treasurer.

PHILADELPHIA—Kolamatic Combustion Co. has been incorporated with $20,000 capital to manufacture and deal in coal saving devices. Harry Fomalont, 106 South Fifty-ninth street, is treasurer.

PHILADELPHIA—E. B. Kelley Inc. has been incorporated with $75,000 capital to manufacture and deal in machinery, engines and electrical devices. L. W. Cline, 358 Lodges lane, Cynwyd, Pa., is treasurer.

PITTSBURGH—Modern Welding Co. Inc. has been incorporated with $5000 capital to engage in the welding business. Herbert J. Scott, 6951 Hamilton avenue, is treasurer.

PITTSBURGH—R. E. Uptegraff Mfg. Co. has been incorporated with $20,000 capital to manufacture and sell electrical devices, by R. E. Uptegraff, 7536 Edgarton avenue.

TARENTUM, PA.—Tarentum Steel Corp. has been incorporated with $50,000 capital to manufacture and deal in iron, steel and metal products of all kinds. Frank C. Irvine, 128 East Eighth street, is treasurer.

LUFKIN, TEX.—Lufkin Armature Works has been incorporated with $5000 capital, by J. A. Hughes.

FREDONIA, WIS.—Gilson Bros. Co. has been incorporated with 1000 shares of no par common stock to manufacture concrete mixers and similar equipment, by John P. Gilson, M. L. Gilson and G. E. Meyer.

MILWAUKEE—Artistic Iron & Bronze Works Inc. has been incorporated with 250 shares of no par stock to design and fabricate ornamental metal goods, by Fred Wichmann, Elsa Wichmann and John J. Dolan, 1950 Larkin street.

VANCOUVER, B. C.—Canadian Highway Marker Co. Ltd. has been incorporated to manufacture and deal in automatic signals and safety appliances, with $25,000 capital, by John Stevenson, William M. Rand and George H. Wheeler, Vancouver.

NORTH BAY, ONT.—Rahn Metals Ltd. has been incorporated to manufacture metal products, and to carry on a general foundry business, with $50,000 capital, by Hugh A. McEwen, George C. Rahn and John H. McDonald, all of North Bay.

TORONTO, ONT.—R. C. Huffman Construction Co. has been incorporated with $100,000 capital to carry on a general contracting business and to manufacture and deal in machinery, contractors' equipment and supplies, by William H. Bouck, John R. Hetherington and R. C. Huffman, all of Toronto.

MONTREAL, QUE.—Montreal Foundry Ltd. has been incorporated to manufacture and deal in iron, steel, brass and other metals with $199,000 capital, by William Bayliss, Archibald S. Wilson and Romeo Leblanc, all of Montreal.

MONTREAL, QUE.—William McClellan & Co. Ltd. has been incorporated to carry on the business of engineer, with a capital of 10,000 shares of no par stock, by Edgar R. Parkins, Edward J. Waterston and Frederick D. Lamont, all of Montreal.

MONTREAL, QUE.—Portable Machinery Co. of Canada Ltd. has been incorporated to manufacture and deal in machinery, motors, engines, tools, etc., with $50,000 capital, by Claude S. Richardson, John G. Porteous and Francis G. Bush, all of Montreal.

MONTREAL, QUE.—Ventilating Co. of Canada Ltd. has been incorporated to manufacture and deal in iron, steel and other metals with a capital of $10,000 and 400 shares of no par stock, by Frank B. Chauvin, Henry N. Chauvin, of Montreal, and Harold E. Walker, Westmount, Que.

New Trade Publications

PYROMETER—Maco Template & Engineering Co. Ltd., London, Eng., describes in a current leaflet its form of optical pyrometer registering temperatures from 550 to 1200 degrees Cent.

STAMPINGS—Commercial Shearing & Stamping Co., Youngstown, O., has issued a catalog of its tank heads and tank specialties, with tables of specifications.

ALLOY STEEL—Joseph T. Ryerson & Son Inc., Chicago, has a bulletin on Nikrome steel for heavy duty industrial uses. After description of the charactertistics and uses of the steel a list of sizes available from stock is given.

STEEL CASTINGS—Lebanon Steel Foundry, Lebanon, Pa., devotes the nineteenth of its series of bulletins to production control, to show how careful supervision of each step in production aids in bringing reliable results.

STEEL CASTINGS—Nugent Steel Castings Co., Chicago, illustrates in a bulletin the advantages of redesign of mechanical devices by showing how the swivel has been improved by new design and use of cast steel.

FORGING MACHINE—National Machinery Co., Tiffin, O., shows in a current bulletin an unusually large forging machine, a 7½-inch high duty machine, to make large upset forgings accurately on a production basis. Illustrations show parts to indicate their unusual size.

TRAMRAIL—Cleveland Electric Tramrail division of the Cleveland Crane & Engineering Co., Wickliffe, O., has issued a bulletin on the use of its tramrail for economical movement of materials and product in the ceramic industry.

WELDING AND CUTTING—Torchweld Equipment Co., Chicago, in a new catalog, lists its entire line of gas welding and cutting equipment, with cross-sectional views of various types, gas pressure regulators and acetylene generators.

LADLES—Whiting Corp., Harvey, Ill., has superseded a former catalog on ladles by a new one, bringing the subject to date. This publication contains full details of the company's new ball bearing helical worm-geared ladle as well as its worm-geared ladle and pin spur-geared ladle.

CONVEYORS—Chain Belt Co., Milwaukee, and its subsidiary, Stearns Conveyor Co., Clevelyand, have brought out a new catalog of their products for materials handling. In addition to a catalog the publication also is an engineering data book. It presents information on chains, chain drives, elevators, conveyors, traveling water screens and construction machinery. Merits of various types of conveyors and elevators are discussed and drawings show operation of each. Special sections deal with application of equipment for mechanical handling of material in specific industries.

ELECTRICAL EQUIPMENT—Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has issued several bulletins on its products. One contains descriptions of its mine and industrial locomotives, with illustrations, plans and data on equipment recently placed in service. One is devoted to automatic network protectors and relays. Halftones and circuit diagrams point out the application of these units and charts supplement the technical discussions. A third shows uses, advantages and construction of cog belt drives for industrial service. Fittings for pipe structures is the subject of another, a revision of a former bulletin. New applications are shown, including racks in industrial establishments, railings, display racks and other uses.

Timken's 8 Ways to Ease Compressor Runs

A Chicago Pneumatic Tool Company Compressor of 500 h. p. offers a fine opportunity for Timken Bearings to prove Timken characteristics. In this one there are 4 Timkens on the crankshaft and 4 on the crankpins.

A compressor so equipped effectively checks power loss, excessive lubrication and rapid depreciation by utilizing the greater thrust, shock and radial load capacity inherently provided by Timken tapered construction, Timken *POSITIVELY ALIGNED ROLLS* and Timken-made steel.

As a result of the exclusive combination of Timken design and Timken material the output per machine and per horse power is maintained at maximum efficiency for extra years of economical operation.

THE TIMKEN ROLLER BEARING COMPANY, CANTON, OHIO

TIMKEN *Tapered Roller* **BEARINGS**

TIMKEN BEARING EQUIPPED

Pipe and Tube Prices—Plate Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

To large jobbers these discounts are increased by 1 point and two supplementary discounts of 5 per cent on black, and 1½ points and two supplementary discounts of 5 per cent on galvanized.

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld

	Black.	Galv.
¼ and ⅜-inch	+11	+36
½-inch	23	5
¾-inch	28	11
1 and 1¼-inch	31	15
1½ and 2-inch	35	18

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	9
2½ to 3½-inch	28	12
4 to 6-inch	30	17
7 and 8-inch	29	16
9 to 12-inch	26	11

REAMED AND DRIFTED

2-inch to 6-inch—Two points less than above

EXTRA STRONG, PLAIN ENDS

¼ and ⅜-inch	+13	+48
½-inch	23	7
¾-inch	28	12
1 to 2-inch	34	18

Lap Weld

2-inch	29	13
2½ to 4-inch	34	20
4½ to 6-inch	33	19
7 and 8-inch	31	17
9 to 12-inch	21	8

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½-inch	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	.....

Jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized wrought iron pipe.

On extra or double extra strong pipe fitted with threads and couplings basing discount lowered 5 points from plain end price. Fitted with threads only, basing discount lowered 3 points for random lengths.

Boiler Tubes

Pittsburgh carload discounts

STEEL (Lap Weld)

2 and 2¼-inch	40 off
2½ and 2¾-inch	48 off
3-inch	54 off
3¼ to 3¾-inch	56 off
4-inch	59 off
4½ to 6-inch	48 off

Subject to two 5 per cent discounts on full carload shipments. On less than 10,000 pounds, base discount reduced 6 points and one 5 per cent allowed. Over 10,000 pounds to carload, base discount reduced 4 points and two 5 per cents allowed.

CHARCOAL IRON

1½-inch	1 off
1¾-inch	8 off
2 and 2¼-inch	13 off
2½ and 2¾-inch	16 off
3-inch	17 off
3¾ to 3½-inch	18 off
4-inch	20 off
4½-inch	21 off

Subject to 10 per cent discount on full carload lots. On less than 10,000 pounds, base discount reduced 2 points and no preferential allowed. On 10,000 pounds to carload, 5 per cent preferential allowed.

SEAMLESS COLD DRAWN

1-inch	63 off
1¼ and 1½-inch	55 off
1¾-inch	39 off
2 and 2¼-inch	34 off
2½ and 2¾-inch	42 off
3-inch	48 off
3¼ and 3½-inch	50 off
4-inch	53 off
4½, 5 and 6-inch	42 off

SEAMLESS HOT ROLLED

1¾-inch	39 off
2 and 2¼-inch	40 off
2½ and 2¾-inch	48 off
3-inch	54 off
3½ and 3½-inch	56 off
4-inch	59 off
4½, 5 and 6-inch	48 off

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed.

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.30 per cent.....50 to 55 off

Carbon 0.30 to 0.40 per cent.....45 to 50 off

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for lengths over 24 feet.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, date Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weight.

Over 100 to and including 110 inches	.05c
Over 110 to and including 115 inches	.10c
Over 115 to and including 120 inches	.15c
Over 120 to and including 125 inches	.25c
Over 125 to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 to and including 84 inches	.10c
Over 84 to and including 96 inches	.20c
Over 96 to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.

GAGE

Plates Not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{16}$-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds square foot..... .20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{16}$-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds square foot.... .20c

Plates ordered 7.65 pounds square foot .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull materials subject to U. S. Navy Dept. specifications for medium or soft steel	.10c
High tensile hull steel subject to U. S. navy department or equivalent specifications	1.00c
Boiler steel subject to U. S. navy department specifications, classes A-B	1.50c
Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.	

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet	No extra
Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra ..... .20c